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SITE MANAGEMENT PLAN

PMC Organometallix (Formerly Arkema) Carrollton, Kentucky Facility

March 2018 (Revision 1)

Prepared for:
Arkema Inc.
900 First Ave.
King of Prussia, PA. 19406

3000 Crystal Run Road, Suite 101
Middletown, NY 10941
(845) 695-9260

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1 INTRODUCTION

This document represents the Site Management Plan (SMP) for the PMC Organometallix Inc., Carrollton Kentucky facility (U.S. Environmental Protection Agency (EPA) ID # KYD006373922, AI # 690). See Figure 1-1 for site location map. This facility was formerly owned and operated by Arkema Inc. (Arkema). This SMP is provided as part of the Corrective Measures Implementation Plan prepared under the Resource Conservation and Recovery Act (RCRA) Corrective Action Program. This work is completed under the requirements of the facility Hazardous Waste Management Permit (the RCRA Permit) issued by the Kentucky Department for Environmental Protection (KDEP), Division of Waste Management (KDWM).

As part of the Corrective Action Program, the facility has been investigated and corrective measures have been selected for identified environmentally impacted areas or Corrective Action Areas. The Corrective Measures include institutional and engineering controls (i.e., capping) to control potential exposure to residually impacted soil. This SMP was prepared to address the means for implementing and maintaining the institutional and engineering controls to insure the long-term effectiveness of the selected remedy.

2 SUMMARY CORRECTIVE MEASURES

The facility has been investigated as part of the RCRA Corrective Action Program and Corrective Measures have been selected for select SWMUs and AOCs. A brief summary of the Corrective Action Areas including those where residual impacts remain onsite (i.e., are contained and located below soil/asphalt caps), are discussed below. As discussed below, the selected remedy includes engineering controls to prevent potential exposure to maintain the long-term effectiveness of the remedy

2.1 Corrective Action Areas

The corrective measures selected for the Corrective Action Areas include engineering controls (i.e. caps) to prevent direct contact with impacted soils. Institutional controls are included in the remedy in the form of an environmental covenant restricting land use and detailing on-going inspections and monitoring to confirm the effectiveness of the remedy. The Corrective Action Areas with engineering controls are shown on Figure 2-1.

A brief summary of the Areas is provided below.

- Former East Tank Farm (SWMU 22) - This area was previously used to store raw materials in above ground tanks, including solvents and resins for the former coatings operation. Sampling has delineated residual impacts in soils in the area. The selected remedy is capping to prevent potential exposure to impacted soils. The cap will utilize existing asphalt and concrete surfaces and installation asphalt and gravel caps in areas of existing gravel.

- B-3 Hot Spot (part of SWMU 69) - This is a small area of impacted soils in the B-3 area of the facility. The selected remedy is the use of existing asphalt and concrete surfaces as a cap to address potential exposure to residual soil impacts.

- Perched Water Area (AOC P) - The B-65 Pad is a hazardous waste storage pad located in the southern portion of the Plant. A thin layer of shallow perched water is present in a portion of the area of the B-65 Pad that contains elevated concentrations of VOCs. The selected remedy is to recover the existing perched water with discharge to the Facility wastewater treatment system and to install soil and asphalt cover to limit future groundwater infiltration, to in turn eliminate or limit the volume of perched water collection.

- North Side Tin Recovery System (TRS) Concrete Pad Area (AOC Q) – This area located on the northern side of the Building B-52 - TRS. A small area of soil impacted with VOCs was identified northwest of the TRS pad. The selected remedy is the use capping to prevent potential exposure to subsurface soils. The cap will consist of existing concrete surfaces plus installation of an asphalt cap in remaining areas that

currently have cover, northwest of the pad. A thin layer of shallow perched water is present under the TRS pad that contains elevated concentrations of VOCs and the remedy will also include of continued operation of existing Sump A for collection of perched groundwater.

3 INSTITUTIONAL CONTROLS

The selected remedy for the Corrective Action Areas includes both engineering (described in Section 4.0 below) and institutional controls at identified Corrective Action Areas. Institutional or administrative controls include implementation of an Environmental Covenant that provides restrictions on future use of the facility. Additional institutional controls include appropriate plans (e.g., Health and Safety Plan, Material Management Plan, Inspection and Maintenance Plan) that will be used to manage and control potential impacts during any disturbance or construction at the Corrective Action Areas and to maintain the long-term effectiveness of the remedy.

The facility is to remain an industrial facility and an Environmental Covenant will be implemented to limit future use as well as define Corrective Action Areas and restrict activities in these areas. The Environmental Covenant is an instrument attached to the deed for the property that spells out use restrictions and certain general provisions affecting property use and reporting requirements to the KDWM. Future redevelopment of the facility for uses other than industrial/commercial would require reevaluation of impacted areas that remain onsite.

An Environmental Covenant, has been prepared pursuant to Kentucky Revised Statutes Chapter 224 Subchapter 80 and is provided in Attachment A. As described in the covenant, residential use will be precluded from any future site development at the facility, and use of groundwater for potable purposes will be prohibited. The Covenant also requires that any excavation or other disturbance of an engineering control (e.g., caps) in the Corrective Action Areas, as defined by the metes and bounds descriptions included in the covenant, will comply with the terms of this SMP. The requirements for inspection and monitoring, reporting, and implementation of plans are included in the Environmental Covenant and are described in section below.

The owner/operator will have the responsibility for day to day adherence to the SMP which includes establishing mechanisms for identifying activities that may disturb the environmental controls installed at the Corrective Action Areas. The facility has procedures in place including the requirement for work and excavation permits. These procedures will be modified to incorporate systems to identify and provide notification of any planned intrusive activity in the Corrective Action Areas.

As discussed below, if disturbance of the caps or intrusive activities become necessary, specific plans and activities will be implemented to provide required notification to KDWM and assure protection of workers, and properly control potentially impacted materials and soils. A Health and Safety Plan (HASP) will be implemented and Site workers and contractors (involved in construction, utility installations/repairs, or other potentially intrusive activities) will be required to follow the Plan. The HASP will describe potential

risks, proper protections that are to be used (e.g. monitoring and Personal Protective Equipment), and required safe work practices as discussed further below and in Attachment B. A summary of residual impacts in the Corrective Action Areas is presented in Attachment B. Additional Plans that will be implemented to maintain the long-term effectiveness of the remedy include the Material Management Plan (MMP) and Inspection and Maintenance Plan which are presented in Sections 4 and 5.

4 ENGINEERING CONTROLS

As previously discussed, engineering controls will be installed at select Corrective Action Areas to prevent potential exposure to potentially impacted soil in these areas or to prevent infiltration. Locations of these area is shown on Figure 2-1 and the metes and bounds limits are provided in the Environmental Covenant. If excavation or other disturbance of an engineering control is necessary, it will be completed as summarized below and comply with the terms of this SMP. Inspection and monitoring, reporting, and implementation of plans and notifications are included as part of the SMP and are discussed in the Environmental Covenant. Further details regarding inspection and reporting are provided in the sections below.

Engineered barrier/cap systems require repairs that could potentially expose impacted materials. In addition, construction, maintenance work or other activities may be required within the Corrective Action Areas that could disturb the engineered barrier. In the event the Corrective Action Areas are disturbed due to construction or utility installation/repairs, procedures will be followed to ensure worker protection, proper management of any waste, and restoration of the area. Activities will follow appropriate Plans including a HASP and MMP to protect workers, to control the manner in which potentially impacted material is excavated and managed during intrusive activities. Prior to commencing work, notifications including descriptions of the planned activities will be prepared, approved by PMC, the owner/operator and submitted to the KDWM.

During construction projects, and utility installation/repair work, site personnel and contractors will follow the requirements and internal protocols including completing the work in accordance with the HASP and the MMP. A HASP is provided in Attachment B and the MMP is attached as Attachment C.

If work causing disturbance to the Corrective Action Areas cannot be performed in accordance with the SMP and the approved procedures described in the MMP, notifications and work plans describing necessary modifications to the Plans will be prepared by Arkema, approved by PMC, and submitted to the KDWM for approval. The work will be completed in accordance with the modified Plans upon the KDWM approval of the proposed changes.

In the event it becomes necessary to disturb soils in Corrective Action Areas due to an emergency response issue, and work cannot be completed in accordance with the approved Plans, notification will be provided to KDWM as soon as practicable after work as occurred. An emergency response would only include issues where there is an immediate threat to human health and the environment or situation where there is emergency shutdown of plant operations (e.g., release of hazardous substances, pollutants or contaminants, emergency utility repairs, natural disasters, and fires).

The following provisions should be made in case intrusive activities are required within capped areas (See Appendices B and C for details):

- Complete work in accordance with the HASP. The HASP will be consistent with the Occupational Safety and Health Administration (OSHA), Hazardous Waste Operations (HAZWOPER) standard (29 CFR 1910.120). A HASP has been provided in Attachment B. A project specific HASP will be finalized prior to the work with modifications and updates for any activities not currently anticipated and documented.
- Use workers trained for hazardous waste operations under OSHA, and communicate the provisions of the HASP to the workers involved.
- Implement the work zones, decontamination procedures, and all other requirements specified by the HASP.
- Use appropriate personal protective equipment (PPE) as specified in the HASP, and implement monitoring as required in the HASP. For example, monitor for organic vapors in the breathing zone using a field photoionization detector (PID) or other appropriate instrument specified by the HASP.
- Follow MMP for handling, storage and potential disposal of soils and cover material. In general, this includes:
    - Temporarily stockpile all excavated impacted soil on plastic sheeting to segregate it from surface materials, or store in containers and cover it to prevent contact or runoff. Stockpiles will be covered with secured plastic sheeting
    - Provide necessary soil erosion and sediment controls
    - Generation of dust will be minimized during loading and transport operations.
    - Required permits and/or authorization for transport of contaminated materials in accordance with local, state, and federal requirements will be obtained.
    - Properly dispose of residual materials in licensed disposal facility after adequate waste characterization.
    - Work will be conducted under the site-specific HASP requirements.
- Restore area with reconstruction of the cover. Caps will be reconstructed in accordance with the requirements of the MMP.
- Provide documentation and notifications, as required, of the activities

5 INSPECTION AND MONITORING

5.1 Inspections

Engineered barrier/cap systems have the potential to become damaged over time, and therefore require regular inspection and required maintenance. In order to insure the integrity of the engineered barriers, periodic inspections and repair, if necessary, will be completed.

Cap inspections will be performed on an annual basis in order to determine the integrity, operability and effectiveness of the caps in accordance with the requirements of the Inspection and Maintenance Plan (Attachment D).

In general, cap inspections will consists of an inspector looking for erosion gullies or slides on the slopes; for signs of settling and unevenness (e.g., ponding); and cracked or crumbling pavement. Any breaches identified in these areas that may cause potential exposure to underlying soils will be repaired, and the inspection and any repairs documented. Records, as described above, will be maintained for activities related to cap inspection and maintenance efforts.

Inspections of the perched water collection system will be performed on a periodic basis in order to determine the operability and effectiveness of the system. Each inspection that is conducted will be recorded on an inspection log. See Inspection and Maintenance Plan (Attachment D) for details.

5.2 Groundwater Monitoring

Routine groundwater monitoring has been conducted at the facility for over 20 years with no significant impacts found in the monitoring wells and production wells screened in the water table aquifer. In order to continue to confirm there are no impacts, groundwater monitoring will continue on a periodic basis. Annual groundwater monitoring will be completed at the existing monitoring wells and active production wells. The well locations are provided on Figure 5-1. The wells will be sampled for volatile organic compounds (VOCs) and Bis(2-ethylhexyl)phthalate. Results of monitoring will be provided to the KDWM. The sampling program will be periodically reviewed and adjustments to the parameters and/or sample location may be proposed based on monitoring results. Should a well be removed from the monitoring program, it will be properly abandoned in accordance with state requirements.

On an annual basis, in order to confirm the integrity of the wells, each groundwater monitoring well will be inspected for signs of damage or evidence of unauthorized entry to

the casing, locking cap, protective cover/vault, or concrete pad. Well deficiencies will be documented and addressed as necessary.

Procedures and methods for the groundwater monitoring program is provided in the attached Sampling and Analysis Plan (Attachment E).

6 REPORTING

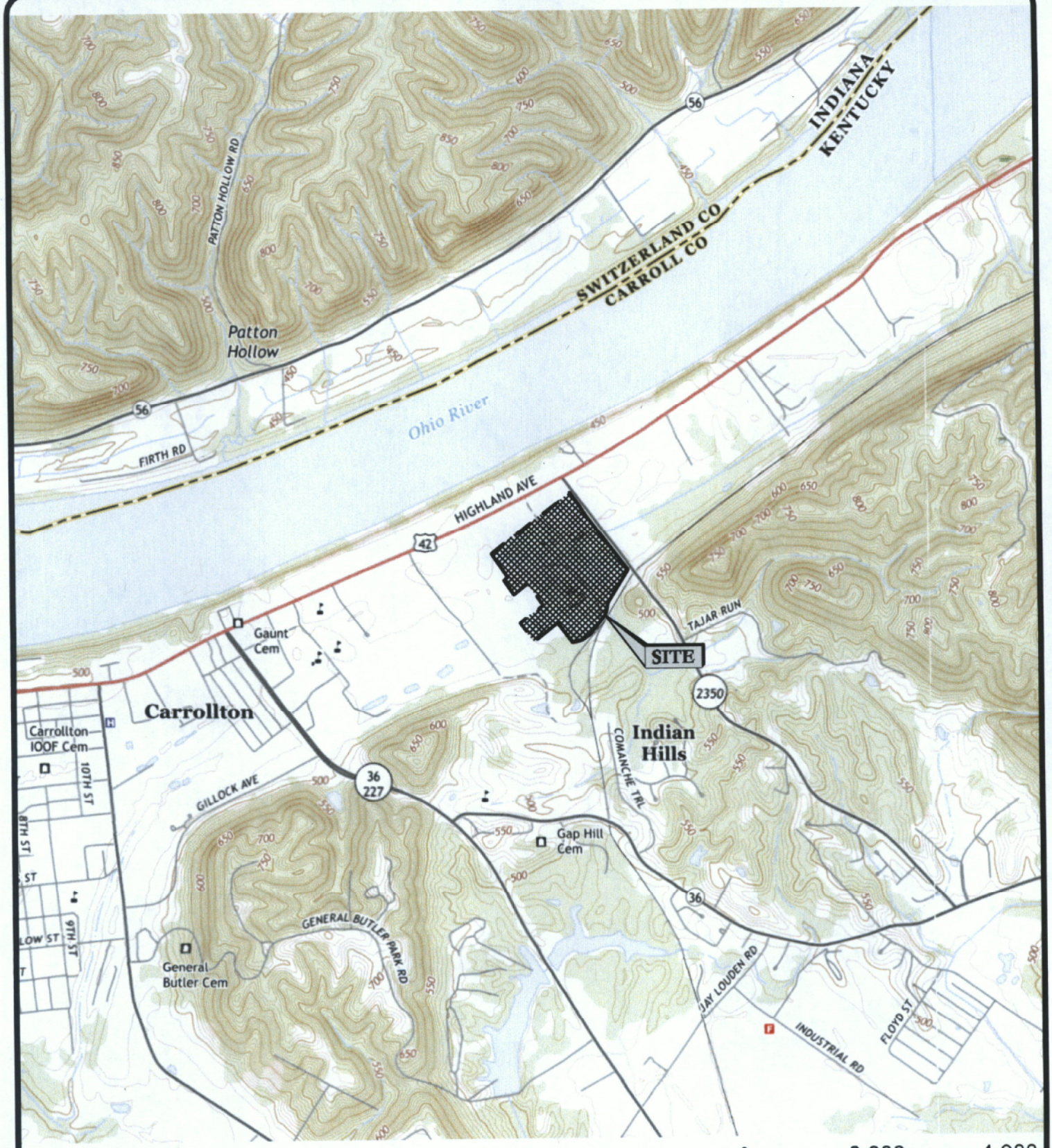
Reporting will be conducted in accordance with the requirements of the Environmental Covenant. An annual report will be prepared to document monitoring and maintenance activities at the Corrective Action Areas and will detail compliance with the terms of the Covenant while noting any exceptions. The report will be prepared and submitted on an annual basis by the anniversary date of the Covenant signature, or other date agreed to with the KDWM.

The annual report will include the following:

- Summary of maintenance activities and repairs performed;
- Documentation of materials disposed of as a result of maintenance or repairs;
- Appended materials such as inspection reports, as appropriate;

In addition, annual groundwater monitoring reports will be prepared and submitted to the KDWM. The annual groundwater monitoring reports will document groundwater sample collection, analytical results, and assessment of the data. It is anticipated that the groundwater monitoring reports will be submitted within 90 days of receipt of final laboratory data.

FIGURES



SOURCE: CARROLLTON, KENTUCKY USGS 7.5 MIN QUDRANGLE, DATED 2016.

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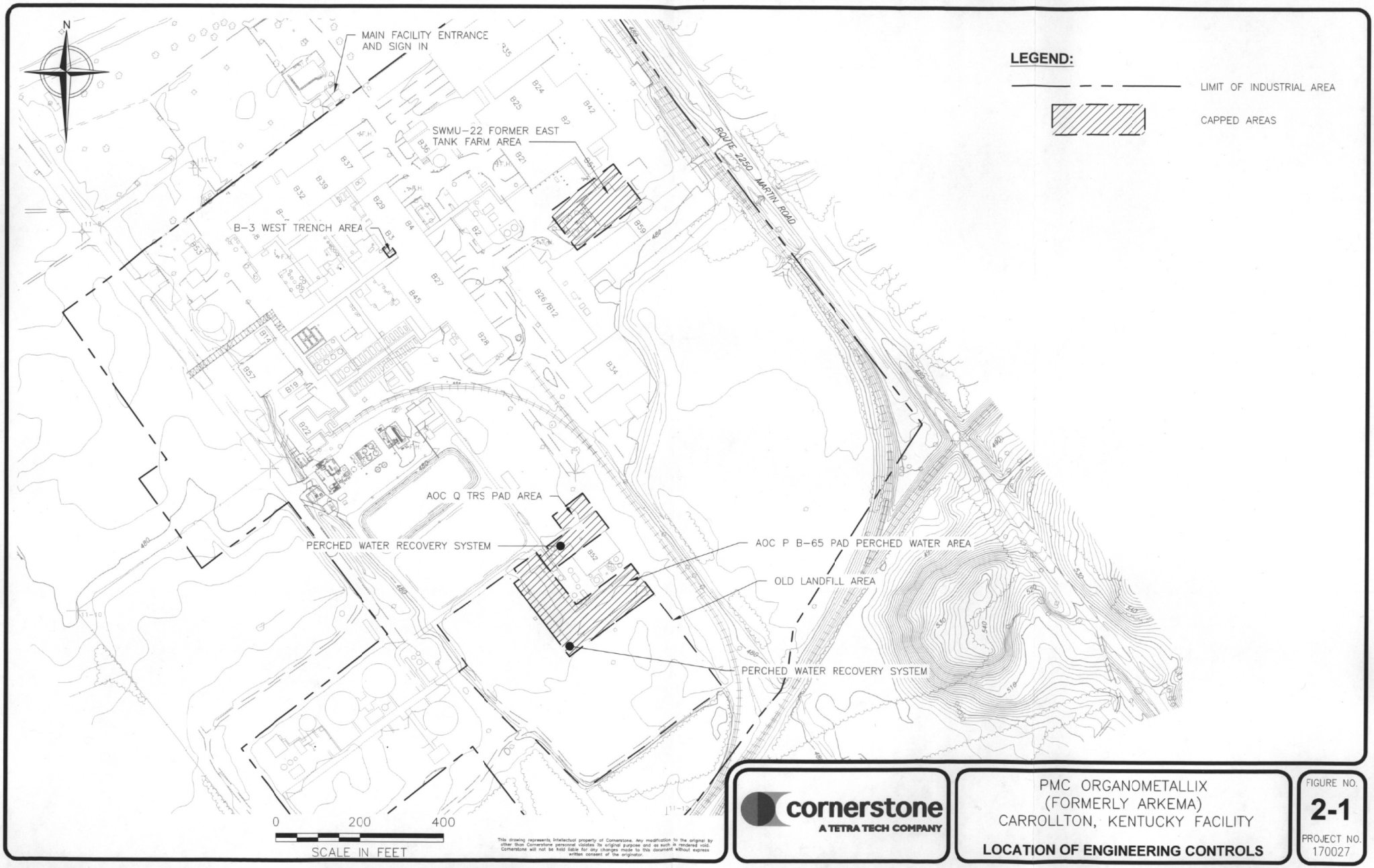
SITE LOCATION MAP

FIGURE NO.
1-1
PROJECT NO.
170027



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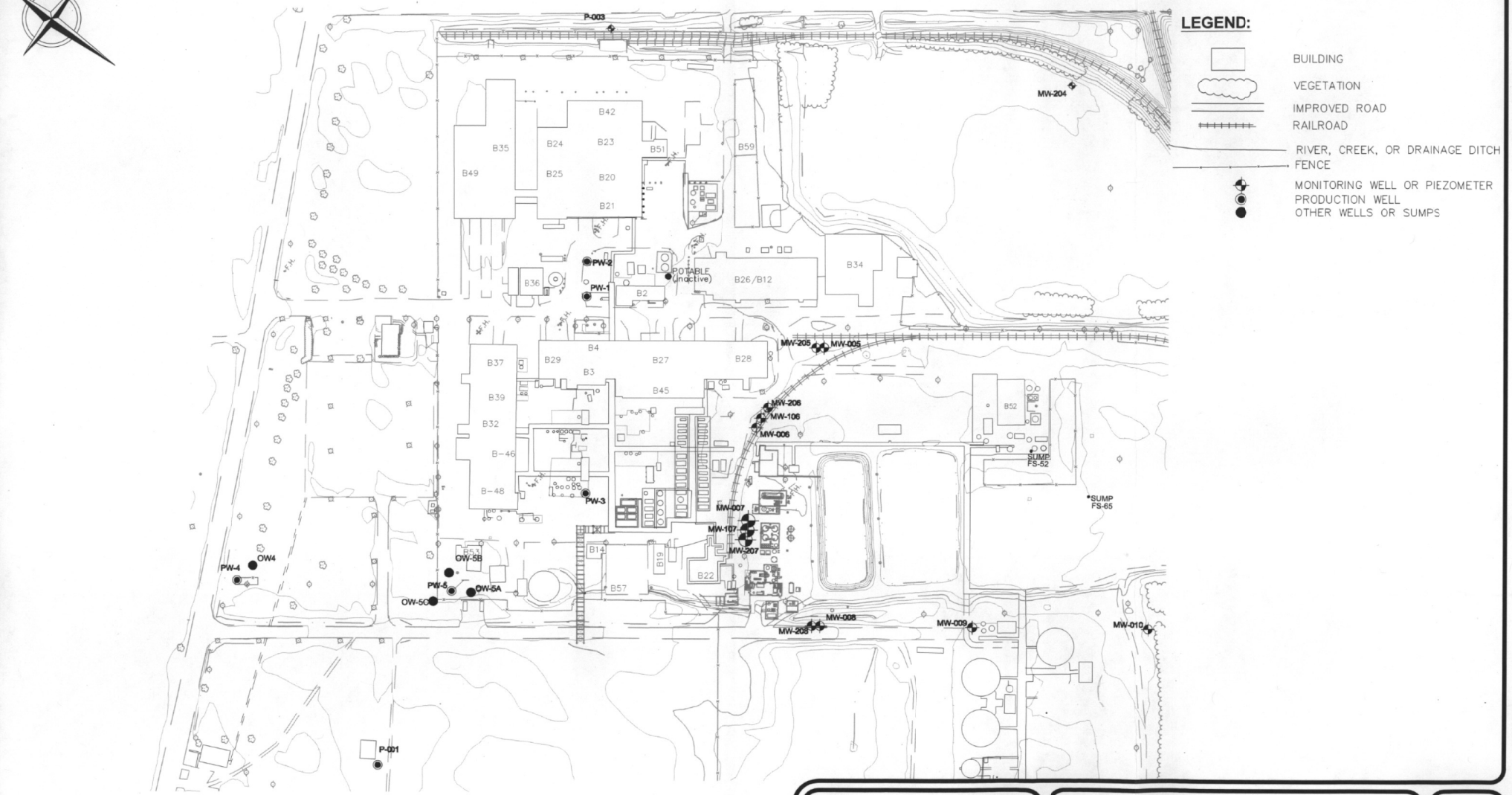
LOCATION OF ENGINEERING CONTROLS

FIGURE NO.
2-1
PROJECT NO.
170027



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GROUNDWATER MONITORING WELL LOCATION PLAN

FIGURE NO.
5-1
PROJECT NO.
170027

File: \\tts625fs2\CEG2\PROJECTS\ARKEMA\170027 - CARROLLTON CMI PLAN_Project Drawings\170027-F-XX-MONITORING WELLS.dwg Layout: FIGURE X User: joseph.nemesh Feb 24, 2017 - 6:50pm

Rev. 1, 3/2/18
Project 170027

ATTACHMENT A
DRAFT ENVIRONMENTAL COVENANT

ENVIRONMENTAL COVENANT

PMC Organometallix, Inc. (hereinafter "Grantor") grants an Environmental Covenant (hereinafter "Covenant") this ___ day of _____, 2016 to the following Holders pursuant to KRS Chapter 224 Subchapter 80: PMC Organometallix, Inc.) and Arkema Inc. (collectively hereinafter "Grantees");

WHEREAS, Grantor is the owner of certain real property located at 2316 Highland Avenue, Carrollton, Kentucky (hereinafter "the Property") more particularly described in Book 192 Page 445 of the Carroll County Clerk's office consisting of the following tracts: Tract 1, Parcel 1; Tract 1, Parcel 2 Tract 2; Tract 3, Parcel 1; Tract 3, Parcel 2; Tract 4; Tract 5; Tract 6; and Tract 7, as described in Attachment A.

WHEREAS, this instrument is an Environmental Covenant developed and executed pursuant to KRS 224.80-100 to KRS 224.80-210;

WHEREAS, this Environmental Covenant concerns a portion of Tract 1, Parcel 2 of the Property, identified as "Impacted Area", and described in Attachment B. The activity and use restrictions set forth herein apply only to the Impacted Area as stated below.

WHEREAS, the Impacted Area is the subject of remedial action pursuant to the Resource Conservation Recovery Act ("RCRA") Corrective Action Program required under KRS 224.46-530.

WHEREAS, historic releases of hazardous substances have occurred resulting in concentrations of metals including antimony, semi-volatile organic compounds including bis(2-ethylhexyl) phthalate, and volatile organic compounds including benzene, chlorobenzene, ethylbenzene, methylene chloride, tetrachloroethene, trichloroethene, toluene, vinyl chloride, and xylene being detected in soils and groundwater on the Property. The releases consisted of an unknown amount. More specifically, areas designated for RCRA Corrective Action have been identified for the Impacted Area (hereinafter "the RCRA Corrective Action Areas") and are more particularly described in Attachment C. The RCRA Corrective Action Areas are located entirely within the Impacted Area.

WHEREAS, Arkema Inc., has proposed a Final Corrective Measures Study dated June 2016 which includes a Corrective Measures Implementation & Site Management Plan (the Plan) for the Impacted Area. The Plan includes the installation of surface caps, maintenance requirements and inspections to manage the effects of historical releases which includes controlling exposure to the hazardous waste, hazardous constituents, hazardous substances, pollutants, or contaminants by restricting certain activities and uses on the Impacted Area.

WHEREAS, concentrations of compounds including antimony up to 2000 mg/kg, benzene up to 53 mg/kg, bis(2-ethylhexyl)phthalate up to 1200 mg/kg, ethylbenzene up to 580 mg/kg, tetrachloroethene up to 400 mg/kg, trichloroethene up to 3.4 mg/kg and xylene

up to 5100 mg/kg will remain in soils in the Impacted Area on the Property above USEPA Regional Screening Levels for residential soils (November 2013 edition) and concentrations of compounds including benzene up to 15 mg/l, chlorobenzene up to 0.26 mg/l, ethylbenzene up to 2.6, methylene chloride up to 0.0072 mg/l, tetrachloroethene up to 0.035 mg/l, toluene up to 5.8 mg/l, trichloroethene up to 0.098 mg/l, and vinyl chloride up to 0.0086 mg/l will remain in perched groundwater above USEPA Maximum Contaminant Levels in the Impacted Area after implementation of the Plan;

WHEREAS, the purpose of this Covenant is to ensure protection of human health and the environment by placing restrictions on activities and uses on the Impacted Area to reduce the risk to human health to below the target risk levels for those hazardous wastes, hazardous constituents, substances, pollutants, or contaminants that remain on the Impacted Area.

WHEREAS, further information concerning the historical releases and the activities to correct the effect of the releases may be obtained by contacting the Custodian of Records of the Kentucky Division of Waste Management (KDWM) at 200 Fair Oaks Lane, Frankfort, Kentucky 40601. Records concerning the Property may be found under Agency Interest # 690.

NOW, THEREFORE, Grantor hereby grants this Environmental Covenant to the Holder, and declares that the Property shall hereinafter be bound by, held, sold, used, improved, occupied, leased, hypothecated, encumbered, and/or conveyed subject to the following requirements set forth in paragraphs 1 through 3 below:

1. DEFINITIONS

A. Owner. "Owner" means PMC Organometallix, Inc., its successors, assigns and heirs in interest.

B. Residential Use. "Residential Use" includes single family or multi family residences; child or adult care facilities; nursing home or assisted living facilities and any type of educational purpose for children/young adults in grades kindergarten through twelfth grade.

2. RESTRICTIONS

A. Prohibited Uses. The Impacted Area shall not be used for residential use.

B. Prohibited Activities.

i. Groundwater at the Impacted Area shall not be used for drinking or other domestic purposes.

ii. Except as necessary to protect human health, safety or the environment, no action shall be taken, allowed, suffered, or omitted

on the Impacted Area if such action or omission is reasonably likely to:

a. Create a risk of migration of hazardous substances, pollutants or contaminants or a potential hazard to human health or the environment; or

b. Result in a disturbance of the structural integrity of any Surface Caps designed or utilized at the Impacted Area to contain hazardous substances, pollutants or contaminants or limit human exposure to hazardous substances, pollutants or contaminants;

iii. Disturbance of the Surface Caps. Prior to any disturbance of any approved Surface Cap placed on the Impacted Area inconsistent with the approved Plan, the Owner shall submit to the KDWM Director a written rationale for the disturbance and detailed plans of the proposed construction for their review and written approval. No such disturbance is permitted without this prior written approval.

iv. Soil Disturbances. Soils at the Impacted Area shall not be disturbed in any manner inconsistent with the approved Plan without the Owner obtaining prior approval of the KDWM Director.

v. Construction. No building shall be constructed on the Impacted Area without the Owner obtaining prior approval of the KDWM Director.

3. GENERAL PROVISIONS

A. Restrictions to Run with the Land. This Environmental Covenant runs with the land pursuant to KRS 224.80-140; is perpetual unless modified or terminated pursuant to the terms of this Covenant; is imposed upon the entire Property unless expressly stated as applicable only to a specific portion thereof; and inures to the benefit of and passes with each and every portion of the Property; and binds the Owner, the Holders, all persons using the land, all persons, their heirs, successors and assigns having any right, title or interest in the Property, or any part thereof who have subordinated those interests to this Environmental Covenant, and all persons, their heirs, successors and assigns who obtain any right, title or interest in the Property, or any part thereof after the recordation of this Environmental Covenant.

B. Conveyances of the Property. Owner shall notify the KDWM Director at least thirty (30) days in advance of any proposed grant, transfer, or conveyance of any interest in any or all of the Property. Notice shall include the name address and telephone number of the prospective transferee, a copy of the proposed deed or

other documentation evidencing the conveyance, and a survey map that shows the boundaries of the property being transferred.

C. Incorporation into Deeds and Leases. Each instrument hereafter conveying any interest in the Property or any portion of the Property shall contain a notice of the activity and use limitations set forth in this Environmental Covenant, and provide the recorded location of this Environmental Covenant. The notice shall be substantially in the following form:

> THE INTEREST CONVEYED HEREBY IS SUBJECT TO AN ENVIRONMENTAL COVENANT, DATED _____, 2016, RECORDED IN THE OFFICIAL RECORDS OF THE CARROLL COUNTY CLERK'S OFFICE IN DEED BOOK _____, Page _____.

D. Zoning Changes. Owner shall notify the KDWM Director simultaneously when any application is submitted to a local government for a building permit for the Impacted Area. Owner shall notify the KDWM of any proposed change in the land use for the Impacted Area.

E. Compliance Certification. Owner shall submit an annual report to the KDWM Director on the anniversary of the date this Covenant was signed by the Grantor, detailing the Owner's compliance, and any lack of compliance with the terms of the Covenant.

F. Right of Access. Owner hereby grants the Kentucky Energy and Environment Cabinet, its agents, contractors and employees and any other Holders the right of access to the Impacted Area for implementation or enforcement of this Environmental Covenant.

G. Representations and Warranties. Grantor hereby represents and warrants to the other signatories hereto:

i. that the Grantor has the power and authority to enter into this Environmental Covenant, to grant the rights and interests herein provided and to carry out all obligations hereunder;

ii. that the Grantor is the sole owner of the Property and holds fee simple title which is free, clear and unencumbered subject to Arkema Inc.'s right of access to the Property to undertake remedial action activities pursuant to the RCRA Corrective Action Program under KRS 224.46-530.

iii. that to the best of Grantor's knowledge, information and belief, and based on a diligent search, the Grantor has identified all other parties that hold any recorded interest (e.g., encumbrance) in the Property

and notified such parties of the Grantor's intention to enter into this Environmental Covenant;

iv. that the Grantor has complied with all public notice requirements in KRS 224.80-110.

v. that this Environmental Covenant will not materially violate or contravene or constitute a material default under any other agreement, document or instrument to which Grantor is a party, by which Grantor may be bound or affected.

vi. that this Environmental Covenant will not materially violate or contravene any zoning law or other law regulating use of the Impacted Area.

vii. that this Environmental Covenant does not authorize a use of the Impacted Area that is otherwise prohibited by a recorded instrument that has priority over the Environmental Covenant.

H. Compliance Enforcement. The terms of the Environmental Covenant may be enforced by the Kentucky Energy and Environment Cabinet or any person identified in KRS 224.80-200 in accordance with applicable law. Failure to timely enforce compliance with this Environmental Covenant or the use limitations contained herein by any person shall not bar subsequent enforcement by such person and shall not be deemed a waiver of the person's right to take action to enforce any non-compliance. Nothing in this Environmental Covenant shall restrict the Kentucky Energy and Environment Cabinet from exercising any authority under applicable law.

I. Modifications/Termination. This Environmental Covenant runs with the land and is perpetual, unless modified or terminated in accordance with KRS 224.80-180 or KRS 224.80-190. The term "Amendment" as used in this Environmental Covenant, shall mean any changes to the Environmental Covenant, including the activity and use limitations set forth herein, or the elimination of one or more activity and use limitations when there is at least one limitation remaining. The term "Termination" as used in this Environmental Covenant, shall mean the elimination of all activity and use limitations set forth herein and all other obligations under this Environmental Covenant.

J. Notices. Any document or communication required to be sent to Kentucky Energy and Environment Cabinet or the KDWM Director under this Covenant shall be sent to:

Director, Division of Waste Management
Department for Environmental Protection
200 Fair Oaks Lane
Frankfort, KY 40601

K. Severability. If any provision of this Environmental Covenant is found to be unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not in any way be affected or impaired.

L. Governing Law. This Environmental Covenant shall be governed by and interpreted in accordance with the laws of the Commonwealth of Kentucky.

M. Recordation. Within ten (10) business days after the date of the final required signature upon this Environmental Covenant, Grantor shall file this Environmental Covenant in the county clerk's office in each county that contains any portion of the real property subject to this environmental covenant.

N. Effective Date. The effective date of this Environmental Covenant shall be the date upon which the fully executed Environmental Covenant has been recorded as a deed record for the Property containing the Impacted Area with the Carroll County Clerk's Office.

O. Distribution of Environmental Covenant. The Grantor shall within thirty (30) days of filing this Environmental Covenant in the Carroll County Clerk's Office, distribute a file and date stamped copy of the recorded Environmental Covenant to the following persons: Director, Kentucky Division of Waste Management, City Administrator or Manager of the City of Carrollton, County Administrator of Carroll County, every Holder of this Environmental Covenant, each person who is in possession of the Property, each person who holds a recorded interest in the Property, and each person who signed this Environmental Covenant.

P. Cabinet and Division References. All references to the Kentucky Energy and Environment Cabinet and the KDWM shall include successor agencies/departments/divisions or other successor entities.

PMC Organometallix, Inc has caused this Environmental Covenant to be executed pursuant to KRS Chapter 224.80-100 to KRS 224.80-210 on this ___ day of _____, 2015.

IN TESTIMONY WHEREOF, the parties have hereunto set their hands this the day and year first above written.

_____ _____

PMC Organometallix, Inc., Grantor/Grantee/Holder Date

STATE OF KENTUCKY)
)
COUNTY OF _____)

The foregoing Environmental Covenant was acknowledged before me by_____ of PMC Organometallix, Inc., this the ____ day of _____, 2016.

_____

Notary Public

My Commission Expires: _____

Arkema Inc. has caused this Environmental Covenant to be executed pursuant to KRS Chapter 224.80-100 to KRS 224.80-210 on this ___ day of _____, 2016.

IN TESTIMONY WHEREOF, the parties have hereunto set their hands this the day and year first above written.

_____ _____

Arkema, Inc., Grantee/Holder Date

STATE OF KENTUCKY)
)
COUNTY OF _____)

The foregoing Environmental Covenant was acknowledged before me by _____, of Arkema, Inc., this the ____ day of _____, 2016.

_____

Notary Public

My Commission Expires: _____

This instrument prepared by:

Bradley E. Dillon
Bingham Greenebaum Doll LLP
3500 National City Tower
101 South Fifth Street
Louisville, KY 40202-3197

KENTUCKY ENVIRONMENTAL AND PUBLIC PROTECTION CABINET

This Environmental Covenant is hereby approved by the Environmental and Public Protection Cabinet this ____ day of _____, 2016.

By: _____ _____
Anthony Hatton, Director, Division of Waste Management — Date

STATE OF KENTUCKY)
)
COUNTY OF _____)

The foregoing Environmental Covenant was acknowledged before me by _____, Anthony Hatton, Director, Division of Waste Management], this the ____ day of _____, 2015.

_____
Notary Public

My Commission Expires: _____

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF CARROLL)

I, _____, Clerk of the Carroll County Court, do certify that the foregoing Environmental Covenant was lodged in my office for record, and that I have recorded it, and the certificate thereon, this _____ day of _____, 2016.

_____
Carroll County Clerk

SUBORDINATION AGREEMENT

[Name of Interest Holder] (hereinafter "Subordinator of Interest"), of [address], [county], [State], is the holder of a [type of interest, lien, mortgage, easement, etc] granted by _____ to _____, dated _____ and recorded with the _____ County Clerks Office in [Deed, Lis Pendens, etc.] Book _____, Page _____.

[Name of Interest Holder] hereby assents to the grant of this Environmental Covenant granted by (Property Owner) to (Grantees i.e. Holders) and recorded with the _____ County Clerk in Deed Book _____, Page_____[to be filled in upon recordation simultaneously with filing of Environmental Covenant] [Or to the grant of the attached Environmental Covenant granted by (Grantor) to (Grantees, i.e. Holders)] and agrees that the [type of interest] shall be subject to said Environmental Covenant and to the rights, covenants, restrictions and easements created by and under said Environmental Covenant insofar as the interests created under the [type of interest] affect the Property or Impacted Area identified in the Environmental Covenant and as if for all purposes said Environmental Covenant had been executed, delivered and recorded prior to the execution, delivery and recordation and/or registration of the [type of interest].

The execution of this subordination agreement by [Name of Interest Holder] shall not subject such person to liability for environmental remediation pursuant to KRS Chapter 224, provided that such person shall not otherwise be liable for environmental remediation pursuant to Chapter 224.

The execution of this subordination agreement by [Name of Interest Holder] shall not be presumed to impose any affirmative obligation on the person with respect to said Environmental Covenant.

[Name of Interest Holder] act of subordinating his/her/its prior interest in the Property to said Environmental Covenant shall not affect the priority of that interest in relation to any other interests that exist in relation to the property.

[Name of Interest Holder] further assents specifically to the subsequent recordation and/or registration of a modification to the Environmental Covenant, in accordance with the terms as referenced in the Environmental Covenant and agrees that [type of interest] shall be subject to the Modified Environmental Covenant and to the rights, covenants, restrictions, and easements created thereby and there under insofar as the interests created under the [type of interest] affect the Property or Impacted Areas as so modified and as if for all purposes said Modified Environmental Covenant had been executed, delivered and recorded prior to the execution, delivery and recordation of the [type of interest].

[Name of Interest Holder] has caused this instrument to be executed this ____ day of _____, 2015.

_____ _____

Name of Interest Holder Date

COMMONWEALTH OF KENTUCKY)

)
COUNTY OF _____)

The foregoing Subordination Agreement was signed, sworn to and acknowledged before me by _____, [Name of each Interest Holder], this the _____ day of _____, 2016.

_____
Notary Public

My Commission Expires: _____

This document prepared by:

_____

[To be added if not attached to the Covenant]

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF _____)

I, _____, Clerk of the _____ County Court, do certify that the foregoing Subordination Agreement was lodged in my office for record, and that I have recorded it, and the certificate thereon, this _____ day of _____, 2016

_____
County Clerk

ATTACHMENT A: PROPERTY DESCRIPTION
(from Carroll County Deed Book 192, Starting Page 445)

CARROLL COUNTY
D192 PG450

Tract 1, Parcel 1:

Situated in the City of Carrollton, County of Carroll, State of Kentucky and lying North of US Highway 42, lying East of Port William Historical Society, lying South of the Ohio River and lying West of United Pentecostal Church and being more particularly described as follows:

Commencing at the intersection of the southeast right of way of US Highway 42 as established by the Commonwealth of Kentucky Department of Highways by state project 13E-GS (1932), and the northeast right of way line of Metal & Thermit (M&T) access road as established by the Commonwealth of Kentucky Department of Highways by state project 21-392-2L (1963);

Thence, leaving the southeast right of way of US Highway 42, N 39°02'00" W a distance of 71.64 feet to the northwest right of way of US Highway 42 and the true point of beginning;

Thence, continuing along the said northwest right of way, S 62°44'24" W a distance of 1462.05 feet;
Thence, leaving the aforementioned right of way, N 32°37'05" W a distance of 650.48 feet to the Ohio River;
Thence, along the Ohio River N 62°27'58" E a distance of 1386.44 feet;
Thence, leaving the Ohio River S 39°02'00" E a distance of 668.33 feet to the true point of beginning; and containing 21.291 acres or 927,436 square feet.

Tract 1, Parcel 2:

Situated in the City of Carrollton, County of Carroll, State of Kentucky and lying South of US Highway 42, lying East of Arkem, Inc. Tract 3, Parcel 1, lying North of the C. & W. Railroad and lying West of Metal & Thermit (M&T) access road and being more particularly described as follows:

Beginning at the west property corner of Tract 1, Parcel 2, said point being on the southeast right of way of US Highway 42 as established by the Commonwealth of Kentucky Department of Highways by state project 13E-GS (1932) and being referenced by a found ½ " iron rod;
Thence,, along the aforementioned right of way N 62°53'12" E a distance of 1954.47 feet to the intersection of said right of way and the southwest right of way line of Metal & Thermit (M&T) access road as established by the Commonwealth of Kentucky Department of Highways by state project 21-392-2L (1963);
Thence,, along the aforementioned southwest right of way, S 39°02'00" E a distance of 1725.16 feet to the intersection of the said right of way and the north right of way of the C. & W. Railroad;
Thence,, along the aforementioned right of way, S 37°18'28" W a distance of 130.62 feet;
Thence,, continuing along said north right of way, S 32°55'49" W a distance of 130.01 feet;
Thence,, continuing along said north right of way, S 29°14'08" W a distance of 530.26 feet to a point of curvature;
Thence,, continuing along said C. & W. right of way, along a 1,440.95 foot radius curve, concave to the east, a distance of 1,019.31 feet to a point of tangency, said curve having a chord bearing of S 09°18'44" W and a chord length of 998.19 feet;
Thence,, continuing along said right of way, S 10°12'54" E a distance of 208.44 feet;
Thence,, continuing along said right of way, N 36°19'29" W a distance of 84.81 feet;
Thence, continuing along said right of way, N 40°55'05" W a distance of 85.28 feet;
Thence, continuing along said right of way, N 43°31'56" W a distance of 66.83 feet;
Thence, continuing along said right of way, N 44°13'39" W a distance of 218.16 feet;
Thence, continuing along said right of way, N 45°31'09" W a distance of 85.35 feet;
Thence, continuing along said right of way, N 48°16'53" W a distance of 78.71 feet;
Thence, continuing along said right of way, N 53°09'00" W a distance of 75.62 feet;
Thence, continuing along said right of way, N 59°04'55" W a distance of 68.30 feet;
Thence, continuing along said right of way, N 69°19'47" W a distance of 120.20 feet;
Thence, leaving the aforementioned right of way, N 12°04'34" E a distance of 9.25 feet;
Thence, N 39°36'44" W a distance of 2439.42 feet to the true point of beginning; and containing 101.448 acres or 4,419,081 square feet.

Tract 2:

Situated in the City of Carrollton, County of Carroll, State of Kentucky and lying West of Metal & Thermit (M&T) access road, Homer Kunselman and the Woodlawn Estates Subdivision, lying North Indian Hills Subdivision and Timber Ridge Subdivision, lying South and East of the C. & W. Railroad and being more particularly described as follows:

Beginning at the north property corner of Lot 91, Indian Hills Subdivision, said point being referenced by a found corner post;
Thence, along a northerly line of the aforementioned Indian Hills Subdivision, S 41°05'04" W a distance of 1297.50 feet;
Thence, along a northerly line of the said subdivision, N 10°35'25" W a distance of 826.26 feet;
Thence, along a northerly line of the said subdivision, S 79°24'35" W a distance of 195.50 feet to the east right of way line of the C. & W. Railroad;
Thence, along said right of way, N 10°13'18"W a distance of 353.57 feet to a point of curvature;
Thence, continuing along said right of way, along a 1,350.45 foot radius curve, concave to the southeast, a distance of 956.50 feet to a point of tangency, said curve having a chord bearing of N 09°19'00" E and a chord length of 935.70 feet;
Thence, continuing along the said right of way, N 29°14'08" E a distance of 527.34 feet;
Thence, continuing along the said right of way, N 32°55'49" E a distance of 123.63 feet;
Thence, continuing along the said right of way, N 37°18'28" E a distance of 105.16 feet to the southwest right of way line of Metal & Thermit (M&T) access road as established by the Commonwealth of Kentucky Department of Highways by state project 21-392-2L (1963);
Thence, along said right of way, leaving the aforementioned railroad right of way, S 39°02'00" E a distance of 203.47 feet;
Thence, continuing along said right of way, S 37°57'49"E a distance of 648.55 feet;
Thence, continuing along said right of way, S 29°09'22" E a distance of 1,433.30 feet to a point of curvature;
Thence, continuing along said right of way, along a 982.25 foot radius, concave to the northeast, a distance of 267.06 feet, said curve having a chord bearing of S 39°27'40" E and a chord length of 266.24 feet;
Thence, leaving the aforementioned right of way line, along the westerly lines of Homer Kunselman and the Woodlawn Estates Subdivision as recorded in Book 74, Page 411, in the office of the Clerk of the County Court of Carroll County, Kentucky, S 29°02'56" E a distance of 1269.73 feet to the north property corner of Tract 5;
Thence, along a northwesterly line of said Tract 5, S 60°3'36" W a distance of 81.61 feet;
Thence, along a northwesterly line of said Tract 5, S 63°44'41" W a distance of 174.41 feet to a northerly property corner of the Timber Ridge Subdivision as recorded in Book 182, Page 673-682, in the office of the Clerk of the County Court of Carroll County, Kentucky;
Thence, along a northerly line of said subdivision, N 26°15'20" W a distance of 41.78 feet to a found 5/8" iron rod;
Thence, along a northerly line of said subdivision, S 63°44'40" W a distance of 172.67 feet to a found 5/8" iron rod;
Thence, along a northerly line of said subdivision, S 26°15'20" E a distance of 41.78 feet to a found 5/8" iron rod;
Thence, along a northerly line of said subdivision, S 63°44'40" W a distance of 380.13 feet to the easterly line of the Indian Hills Subdivision;
Thence, along said easterly line, passing a 5/8" iron rod at a distance of 243.92 feet, N 13°25'41" W a distance of 1276.43 feet to a 5/8" iron rod;
Thence, along an easterly line of said subdivision, passing a found 1/2" iron rod at a distance of 73.90 feet, N 38°20'45" W a distance of 423.94 feet to the true point of beginning; and containing 80.291 acres or 3,497,495 square feet.

Tract 3, Parcel 1:

Situated in the City of Carrollton, County of Carroll, State of Kentucky and lying South of US Highway 42, lying East of Arkem, Inc. Tract 4 and Duperdale Subdivision, lying North of the C. & W. Railroad and lying West of Arkem, Inc. Tract 1, Parcel 2 and being more particularly described as follows:

Beginning at the north property corner of Tract 3, Parcel 1, said point being on the southeast right of way of US Highway 42 as established by the Commonwealth of Kentucky Department of Highways by state project 13E-GS (1932) and being referenced by a found ½ " iron rod;
Thence, leaving said right of way, S 39°36'44" E a distance of 2439.42 feet;
Thence, S 12°04'34" W a distance of 9.25 feet to a point on the north right of way of the C. & W. Railroad;
Thence, along said right of way, N 76°20'41" W a distance of 60.88 feet;
Thence, continuing along said right of way, N 80°39'50 W a distance of 60.48 feet;
Thence, continuing along said right of way, N 86°07'46" W a distance of 58.95 feet;
Thence, continuing along said right of way, S 89°08'37" W a distance of 60.72 feet;
Thence, continuing along said right of way, S 83°39'00" W a distance of 65.40 feet;
Thence, continuing along said right of way, S 78°56'11" W a distance of 68.05 feet;
Thence, continuing along said right of way, S 12°51'20" E a distance of 8.00 feet;
Thence, continuing along said right of way, S 75°30'21" W a distance of 661.72 feet;
Thence, continuing along said right of way, S 74°06'42" W a distance of 96.06 feet;
Thence, continuing along said right of way, S 72°58'46" W a distance of 109.21 feet;
Thence, continuing along said right of way, S 70°28'38" W a distance of 95.17 feet;
Thence, continuing along said right of way, S 68°12'12" W a distance of 108.93 feet;
Thence, continuing along said right of way, S 65°25'33" W a distance of 396.33 feet;
Thence, continuing along said right of way, S 65°02'13" W a distance of 7.26 feet to a found 5/8" iron rod;
Thence, leaving the aforementioned right of way, along the northeasterly line of Arkema, Inc, Tract4, N 39°59'00" W, a distance of 1045.43 feet to a found 1/2" iron rod;
Thence, along a northeasterly line of Duperdale Subdivision, N 38°36'54" W a distance of 404.63 feet;
Thence, along a northeasterly line of said subdivision, N 38°36'16" W a distance of 401.36 feet;
Thence, along a northeasterly line of said subdivision, N 38°36'05" W a distance of 275.45 feet to the aforementioned southeast right of way of US Highway 42;
Thence, along said right of way, N 65°37'15" E a distance of 965.30 feet;
Thence, continuing along said right of way, S 24°22'45" E a distance of 5.00 feet;
Thence, continuing along said right of way, N 65°37'15" E a distance of 166.01 feet;
Thence, continuing along said right of way, N 64°49'58" E a distance of 574.98 feet to the true point of beginning; and containing 92.381 acres or 4,024,117 square feet.

Tract 3, Parcel 2:

Situated in the City of Carrollton, County of Carroll, State of Kentucky and lying South and West of the C. & W. Railroad and lying North of Kentucky Route No. 36 and lying East of Christian Academy of Carrollton Inc. and Dan Carraco and Carol Teach and being more particularly described as follows:

Beginning at the southwest property corner of Tract 3, Parcel 2, said point being on the north right of way of Kentucky Route No. 36 and being referenced by a found ½ " iron rod;
Thence, leaving said right of way, N 10°36'44" E a distance of 621.02 feet to a found ½ " iron rod;
Thence, N 36°10'08" W a distance of 95.67 feet;
Thence, S 48°03'51" W a distance of 93.41 feet;
Thence, N 40°02'07" W a distance of 1376.94feet to a point on the south right of way of the C. & W. Railroad;
Thence, along said right of way, N 65°25'33" E a distance of 385.29 feet;
Thence, along said right of way, N 68°12'12" E a distance of 106.96 feet;
Thence, along said right of way, N 70°26'38" E a distance of 93.09 feet;
Thence, along said right of way, N 72°58'46" E a distance of 107.62 feet;
Thence, along said right of way, N 74°06'42" E a distance of 94.95 feet;
Thence, along said right of way, N 75°30'21" E a distance of 660.09 feet;
Thence, along said right of way, S 12°45'15" E a distance of 8.00 feet;
Thence, along said right of way, N 78°56'11" E a distance of 62.48 feet;
Thence, along said right of way, N 83°39'00" E a distance of 59.51 feet;
Thence, along said right of way, N 89°08'37" E a distance of 54.82 feet;
Thence, along said right of way, S 86°07'07" E a distance of 53.08 feet;
Thence, along said right of way, S 80°39'50" E a distance of 54.85 feet;
Thence, along said right of way, S 76°20'41" E a distance of 58.39 feet;
Thence, along said right of way, S 69°04'37" E a distance of 106.08 feet;
Thence, along said right of way, S 59°04'55" E a distance of 59.11 feet;
Thence, along said right of way, S 53°09'00" E a distance of 69.39 feet;
Thence, along said right of way, S 48°16'53" E a distance of 74.31 feet;
Thence, along said right of way, S 45°31'09" E a distance of 83.01 feet;
Thence, along said right of way, S 44°13'39" E a distance of 217.02 feet;
Thence, along said right of way, S 43°31'56" E a distance of 64.92 feet;
Thence, along said right of way, S 40°55'05" E a distance of 81.13 feet;
Thence, along said right of way, S 36°19'29" E a distance of 71.77 feet;
Thence, along said right of way, S 30°39'25" E a distance of 70.65 feet;
Thence, along said right of way, S 26°27'13" E a distance of 54.43 feet;
Thence, along said right of way, S 22°11'39" E a distance of 50.27 feet;
Thence, along said right of way, S 18°18'10" E a distance of 54.95 feet;
Thence, along said right of way, S 15°39'34" E a distance of 43.70 feet;
Thence, along said right of way, S 12°27'54" E a distance of 41.52 feet;
Thence, along said right of way, S 10°12'54" E a distance of 710.01 feet;
Thence, along said right of way, S 10°12'54" E a distance of 216.18 feet;
Thence, leaving the aforementioned right of way (now the west right of way line of the C. & W. Railroad), S 84°00'13" W a distance of 156.23 feet to a found ½" iron rod;
Thence, S 84°20'18" W a distance of 178.13 feet to a found ½" iron rod;
Thence, S 06°6d18'40" E a distance of 337.33 feet to the north right of way line of Kentucky Route No. 36;
Thence, along said right of way, S 83°27'48" W a distance of 74.60 feet;
Thence, along said right of way, S 80°10'23" W a distance of 81.79 feet;
Thence, along said right of way, S 78°55'33" W a distance of 247.55 feet;
Thence, along said right of way, S 80°43'05" W a distance of 101.11 feet;
Thence, along said right of way, S 84°17'36" W a distance of 58.68 feet;
Thence, along said right of way, S 89°19'06" W a distance of 67.73 feet;
Thence, along said right of way, N 85°27'30" W a distance of 71.01 feet;
Thence, along said right of way, N 80°40'09" W a distance of 90.69 feet;

Thence, along said right of way, N 78°37'50" W a distance of 157.32 feet;
Thence, along said right of way, N 79°31'48" W a distance of 74.78 feet;
Thence, along said right of way, N 83°24'34" W a distance of 107.12 feet;
Thence, along said right of way, N 87°11'39" W a distance of 92.99 feet;
Thence, along said right of way, N 89°31'29" W a distance of 211.67 feet to the true point of beginning; and containing 85.418 acres or 3,720,790 square feet.

Tract 4:

Situated in the City of Carrollton, County of Carroll, State of Kentucky and being North of Railroad and lying East of Carroll County Board of Education and lying South of Duperdale Subdivision and lying West of Tract G and being more particularly described as follows:

Beginning at a ½" iron rod found in the North right of way of the c. & W. Railroad and east property line of Carroll County Board of Education; thence leaving the North right of way of C. & W. Railroad and along the east property line of Carroll County Board of Education;
Thence with the east line of Carroll County Board of Education, N 35°33'21" W, a distance of 760.77 feet;
Thence, N 37°54'37" W, a distance of 266.33 feet to a ½" iron pin found and corner of School and Duperdale Subdivision;
Thence, leaving school property and along property line of lot 14 and lot 13 of Duperdale Subdivision, N 64°37'43" E, a distance of 328.76 feet to a ½" iron round found at the southeast corner of lot 13;
Thence, S 39°59'00" E, a distance of 1045.43 feet to a 5/8" iron rod found on the North right of way of C. & W. Railroad;
Thence, along said right of way, S 65° 02' 13" W, a distance of 370.08 feet to the true point of beginning; and containing 8.349 acres, or 363,683 square feet.

Tract 5:

Situated in the City of Carrollton, County of Carroll, State of Kentucky and lying West of the Woodlawn Estates Subdivision, lying North and East of the Timber Ridge Subdivision and lying South of Arkema, Inc. Tract 2 and being more particularly described as follows:

Beginning at the south property corner of Tract 5, being a northerly property corner of Lot 4 of the Timber Ridge Subdivision, as recorded in Book 182, Page 673-682, in the office of the Clerk of the County Court of Carroll County, Kentucky, said point being referenced by a found 5/8" iron rod;
Thence, N26°15'20"W a distance of 29.80 feet;
Thence, N63°44'41"E a distance of 174.41 feet;
Thence, N60°3'36"E a distance of 81.81 feet;
Thence, S29°02'56"E a distance of 30.00 feet;
Thence, N62°36'48"E a distance of 257.36 feet to the true point of beginning; and containing 0.166acres or 7,213 square feet.

Tract 6:

Situated in the City of Carrollton, County of Carroll, State of Kentucky and lying South of US Highway 42, lying East of Metal & Thermit (M&T) access road, lying North of the C. & W. Railroad and lying West of G.C. and William Wade Bucy and being more particularly described as follows:

Beginning at the intersection of the southeast right of way of US Highway 42 as established by the Commonwealth of Kentucky Department of Highways by state project 13E-GS (1932), and the northeast right of way line of Metal & Thermit (M&T) access road as established by the Commonwealth of Kentucky Department of Highways by state project 21-392-2L (1963);
Thence, along the southeast Right of Way of said US Highway 42, N 63°16 04"E a distance of 50.52 feet to a point of curvature;
Thence, continuing along said right of way line, along a curve to the left having a radius of 11459.30 feet a distance of 608.16 feet, said curve having a chord of bearing of N 61°45'04" and a chord length of 608.11 feet, to a found ½" iron rod, said rod found being the northwest corner of the tract of ground conveyed to G. C. Bucy and William Wade Bucy by Will Book 10, Page 557, in the office of the Clerk of the County Court of Carroll County, Kentucky;
Thence, leaving the aforementioned right of way line and proceeding with the Bucy tract, S 38°31'20" E a distance of 1542.45 feet to the northwest right of way of the C. & W. Railroad, as recorded in Deed Book 62, Page 573, in the office of the Clerk aforesaid;
Thence, along said railroad right of way S 51°23'01" W a distance of 292.65 feet to a point of curvature;
Thence, continuing said railroad right of way, along a curve to the left having a radius of 1910.00 a distance of 334.81 feet, said curve having a chord bearing of S 46°33'05" W and a chord length of 334.42 feet, to a found ½" iron rod in the northeast right of way of M&T access road;
Thence, leaving said railroad right of way and proceeding along the northeast right of way of said M&T access road, N 39°02'00" W a distance of 915.73 feet;
Thence, continuing along said right of way, N 36°10'15" W a distance of 100.12 feet;
Thence, continuing along said right of way, N 39°02 '00 " W a distance of 150.00 feet;
Thence, continuing along said right of way, N 40 56'33" West a distance of 150.08 feet;
Thence, continuing along said right of way, N 44°44'36" W a distance of 100.50 feet;
Thence, continuing along said right of way, N 39°02'00" W a distance of 257.48 feet to the point of beginning, containing 23.22 acres, or 1,011,463 square feet.

Tract 7:

Situated in the City of Carrollton, County of Carroll, State of Kentucky and lying North of US Highway 42, lying East of Malcolm Carraco, lying South of the Ohio River and lying West of Ray & Martha Spenneberg and being more particularly described as follows:

Beginning at the east property corner of Tract 7, said corner being on the northwest right of way of US Highway 42 as established by the Commonwealth of Kentucky Department of Highways by state project 13E-GS (1932);

Thence, along said right of way, S 65°06'54" W a distance of 570.42 feet;
Thence, continuing along said right of way, N 24°22'45" W a distance of 5.00 feet;
Thence, continuing along said right of way, S 65°39'29" W a distance of 478.07 feet;
Thence, leaving the northwest right of way of US Highway 42, along a northeasterly property line of Malcolm Carraco, as recorded in Book 143 Page 19, in the office of the Clerk of the County Court of Carroll County, Kentucky, N 25°36'24" W a distance of 238.81 feet;
Thence, along a northeasterly property line of said property, N 00°44'26" E a distance of 123.56 feet;
Thence, along a northeasterly property line of said property, N 48°54'21" W a distance of 76.98 feet;
Thence, along a northeasterly property line of said property, N 18°04'53" W a distance of 216.00 feet to the Ohio River;
Thence, along the Ohio River, N 65°04'03" E a distance of 835.08 feet;
Thence, leaving the Ohio River, along the southwesterly property line of Ray & Martha Spenneberg as recorded in Book 130 Page 352, of the aforementioned records, S 39°43'44" E a distance of 657.11 feet to the true point of beginning; and containing 13.816 acres or 601,826 square feet.

ATTACHMENT B: IMPACTED AREA DESCRIPTON

Beginning at a point of tangency on the 6 foot tall chain link security fence at SPC N: 4,137,795.89, E: 5,094,756.50 ; Thence along said fence the following four calls:
S 31°40'49" W a distance of 205.54 feet;
Thence S 06°43'37" W a distance of 95.39 feet;
Thence S 17°30'15" W a distance of 55.26 feet;
Thence S 39°19'50" W a distance of 71.85 feet to the south-west fence corner of an electric substation;
Thence S 35°47'35" W a distance of 259.28 feet to a point in the 6 foot tall chain link security fence;
Thence with said fence the following three calls:
S 41°08'01" W a distance of 72.42 feet;
Thence S 58°58'14" W a distance of 132.94 feet;
Thence S 70°18'16" W a distance of 156.17 feet to a set 5/8" rebar in said fence line;
Thence leaving said fence line N 37°13'07" W a distance of 382.51 feet to a set 5/8" rebar;
Thence S 51°06'57" W a distance of 446.95 feet to a set 5/8" rebar;
Thence N 36°40'03" W a distance of 341.69 feet to a set 5/8" rebar;
Thence N 51°55'01" E a distance of 444.45 feet to a set 5/8" rebar;
Thence N 36°52'06" W a distance of 396.73 feet to a set 5/8" rebar;
Thence S 52°38'26" W a distance of 262.23 feet to a set 5/8" rebar;
Thence N 35°28'23" W a distance of 96.12 feet to a corner in the 6 foot tall chain link security fence;
Thence with said fence the following 6 calls:
N 35°10'07" W a distance of 166.48 feet;
Thence N 54°15'00" E a distance of 79.42 feet;
Thence N 34°37'27" W a distance of 428.15 feet to a corner in said fence;
Thence N 52°39'41" E a distance of 159.51 feet to a set "MAG" nail with a washer stamped "LATTO-3466"[said nail being located N 24°42'18" W a distance of 466.08 feet to a flush concrete highway right of way marker found at a 8.20 foot jog in the south line of US 42];
Thence N 48°59'31" E a distance of 84.97 feet to a slight corner of said fence;
Thence with said fence N 52°58'35" E a distance of 1238.41 feet (passing a corner of said fence at 1228.66 feet) to a point in the south-west right-of way of Kentucky Highway 2350, aka Martin Road, originally dedicated as M & T Access road by Kentucky Highway Department project S.P.21-392-4 in 1963 [said point being located N 07°26'23" W a distance of 240.83 feet to a highway right of way marker found near the south east intersection of US 42 and KY 2350];
Thence with said highway right of way the following three calls:
S 37°13'19" E a distance of 240.14 feet;
Thence S 34°21'34" E a distance of 200.25 feet;
Thence S 37°13'19" E a distance of 1008.84 feet;
Thence leaving said highway right of way S 31°40'49" W a distance of 373.67 feet to the point of beginning, containing 2,543,397 square feet more or less, 58.388 acres more or less.

Being on part of the property acquired by PMC Organometallix, Inc. by deed book 192, page 445, dated July 25, 2013, of record in the office of the Carroll County Clerk, Carrollton, KY.

ATTACHMENT C: CORRECTIVE ACTION AREA DESCRIPTION

Area 1 – Former East Tank Farm (Solid Waste Management Unit (SWMU) 22):

Area 1 is located 66' +/-south east of buildings 821, B20, B23 & B42 and 14' south east of B51. Beginning at a magnail set at SPC N: 4138735.53, E: 5094215.78; Thence S 37°15'46" E 113.56' to a magnail set; Thence S 52°59'00" W 192.92' to a magnail set; Thence N 36°35'37" W 113.47' to a X-cut set; Thence N 52°57'19" E 191.59' the point of beginning, containing 21,824 Sq. Ft. or 0.501 Acres +/-.

Area 2 – B3 Area (Portion of Process Sewer - SWMU 69):

Area 2 is located at the south west corner of building B3 and abuts the north edge of building B-45. Beginning at a drillhole set near the north face of building B45 at SPC N: 4138509.46, E: 5093683.26; Thence leaving said north face N 36°32'12" W 27.00' (passing a witness monument drill hole set at 17 .35') to a point; Thence N 53°27'48" E 20.00' (passing through the west wall of building B3 at 7.24' to a point; Thence S 36°32'12" E 27.00' (passing through a south wall of building B3 at 9.21') to a point at the interior corner of buildings B3, B27 and B45; Thence with a line near the north face of building 845, S 53°27'48" W 20.00' to the point of beginning, containing 540.0 Sq. Ft. or 0.012 Acres +/-.

Area 3 – North Side TRS Pad Area (Area of Concern (AOC Q)):

Beginning at a railroad spike set at SPC N: 4,137,938.42, E: 5,094,135.78; Thence N 52°42'57" E 10.81' to Mag nail set in the edge of an asphalt drive; Thence with said edge of S 36°51'26" E 104.60' to a magnail set; Thence S 52°50'29" W 10.17' to a railroad spike set at the north east corner of building B52; Thence with a line near the face of said B52, S 52°51'15" W 163.15' (passing the north west corner of said B52 at 100.00') to an IPC set; Thence N 37°12'49" W 30.27' to a railroad spike set (said spike set also being the north east corner of Area 4 defined below); Thence N 36°26'30" W 15.89' to an IPC set; Thence N 53°14'36" E 28.40' to an IPC set; Thence N 36°12'31" W 7.45' to an IPC set; Thence N 53°05'09" E 54.30' to an IPC set; Thence N 36°36'05" W 50.51' to an IPC set; Thence N 52°13'39" E 79.57' to the point of beginning, containing 13,643 Sq. Ft. or 0.313 Acres +/-.

Area 4 – B-65 Perched Water Area (AOC P):

Area 4 is located south and west of building B52. Beginning at a magnail set at SPC N: 4,137,703.40, E: 5,094,313.35; Thence S 52°48'55" W 249.95' to a railroad spike set; Thence N 37°01'36" W 220.11' to a railroad spike set; Thence N 52°39'07" E 86.80' to a railroad spike set in

CMI-SMP

APPENDIX 2

Metes and Bounds Descriptions of Corrective Action Areas

DESCRIPTION

IMPACTED AREA DESCRIPTION

AT PMC ORGANOMETALLIX, INC. CARROLLTON, KY

(previously owned by ARKEMA INC.)

GENERAL DESCRIPTION NOTES

The impacted area described herein is located within the bounds of the property conveyed to PMC Organometallix, Inc. by deed book 192, page 445, dated July 25, 2013, of record in the office of the Carroll County Clerk in Carrollton, KY. All four Corrective Action Areas described previously in Exhibit A are within the impacted area description that follows. Said property having a mailing address of 2316 Highland Avenue (aka US Highway 42), Carrollton, KY 41008.

Designated Meridian for the following descriptions is based on G.P.S. observations on the monuments and fences found on December19, 2012. G.P.S. data is as follows: KY single zone 1600; Horizontal datum is NAD83; Geoid model is USG2009; Network RTK; Horizontal precision error does not exceed 0.067'; Lambert Conformal Conic 2 parallel; and the G.P.S. unit was a Trimble R8-2, dual frequency receiver. "SPC" are Kentucky State Plane Coordinates relative to the aforementioned Designated Meridian.

Beginning at a point of tangency on the 6 foot tall chain link security fence at SPC N: 4,137,795.89, E: 5,094,756.50 ; Thence along said fence the following four calls:
S 31°40'49" W a distance of 205.54 feet;
Thence S 06°43'37" W a distance of 95.39 feet;
Thence S 17°30'15" W a distance of 55.26 feet;
Thence S 39°19'50" W a distance of 71.85 feet to the south-west fence corner of an electric substation;
Thence S 35°47'35" W a distance of 259.28 feet to a point in the 6 foot tall chain link security fence;
Thence with said fence the following three calls:
S 41°08'01" W a distance of 72.42 feet;
Thence S 58°58'14" W a distance of 132.94 feet;
Thence S 70°18'16" W a distance of 156.17 feet to a set 5/8" rebar in said fence line;
Thence leaving said fence line N 37°13'07" W a distance of 382.51 feet to a set 5/8" rebar;
Thence S 51°06'57" W a distance of 446.95 feet to a set 5/8" rebar;
Thence N 36°40'03" W a distance of 341.69 feet to a set 5/8" rebar;
Thence N 51°55'01" E a distance of 444.45 feet to a set 5/8" rebar;
Thence N 36°52'06" W a distance of 396.73 feet to a set 5/8" rebar;
Thence S 52°38'26" W a distance of 262.23 feet to a set 5/8" rebar;

Thence N 35°28'23" W a distance of 96.12 feet to a corner in the 6 foot tall chain link security fence;
Thence with said fence the following 6 calls:
N 35°10'07" W a distance of 166.48 feet;
Thence N 54°15'00" E a distance of 79.42 feet;
Thence N 34°37'27" W a distance of 428.15 feet to a corner in said fence;
Thence N 52°39'41" E a distance of 159.51 feet to a set "MAG" nail with a washer stamped "LATTO-3466"[said nail being located N 24°42'18" W a distance of 466.08 feet to a flush concrete highway right of way marker found at a 8.20 foot jog in the south line of US 42];
Thence N 48°59'31" E a distance of 84.97 feet to a slight corner of said fence;
Thence with said fence N 52°58'35" E a distance of 1238.41 feet (passing a corner of said fence at 1228.66 feet) to a point in the south-west right-of way of Kentucky Highway 2350, aka Martin Road, originally dedicated as M & T Access road by Kentucky Highway Department project S.P.21-392-4 in 1963 [said point being located N 07°26'23" W a distance of 240.83 feet to a highway right of way marker found near the south east intersection of US 42 and KY 2350];
Thence with said highway right of way the following three calls:
S 37°13'19" E a distance of 240.14 feet;
Thence S 34°21'34" E a distance of 200.25 feet;
Thence S 37°13'19" E a distance of 1008.84 feet;
Thence leaving said highway right of way S 31°40'49" W a distance of 373.67 feet to the point of beginning, containing 2,543,397 square feet more or less, 58.388 acres more or less, according to field measurements made by Joel B. Latto, KY PLS #3466, of Ops Engineering, LLC, Louisville, KY, completed on April 15th, 2013.

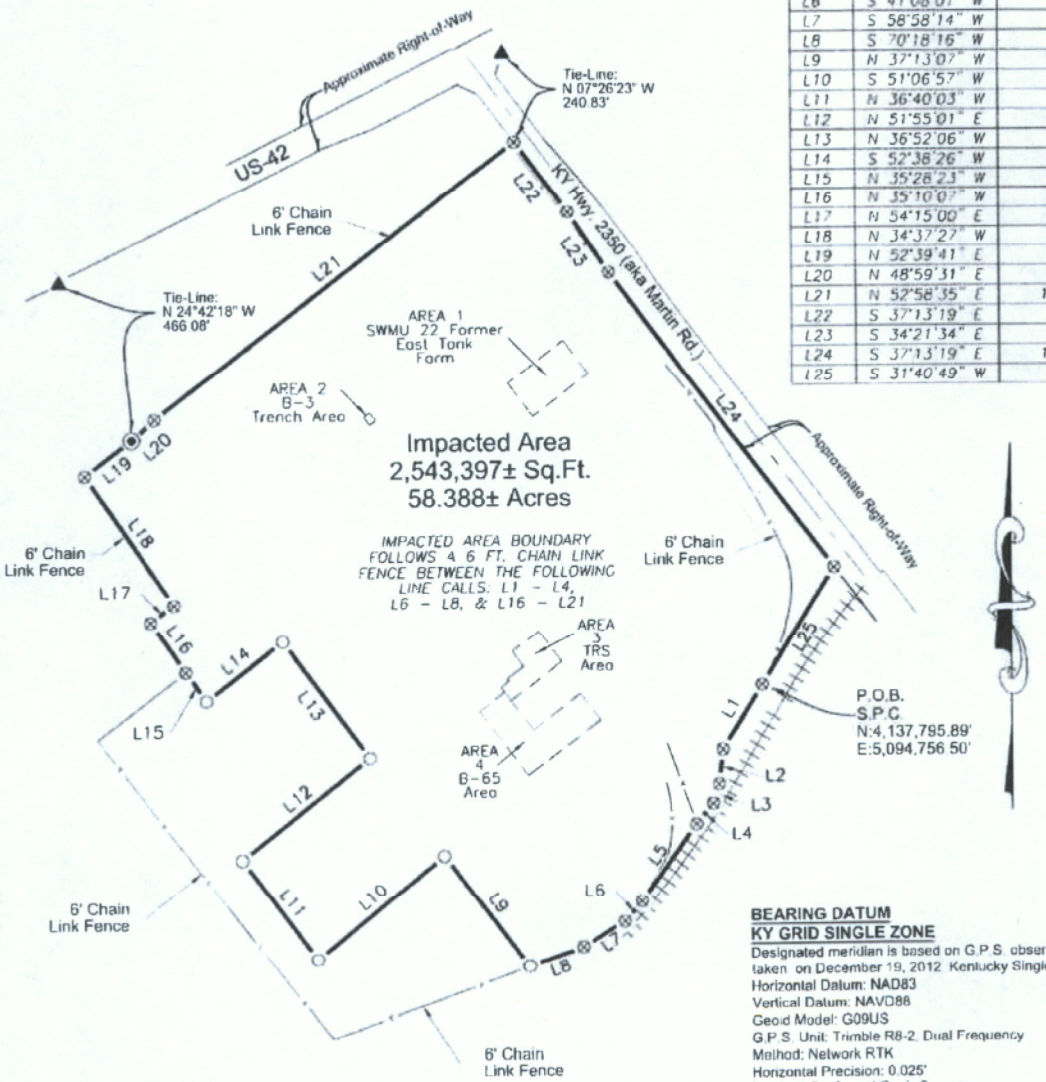
Being on part of the property acquired by PMC Organometallix, Inc. by deed book 192, page 445, dated July 25, 2013, of record in the office of the Carroll County Clerk, Carrollton, KY.

This document is intended to define the impacted area for the client listed below. This document does not represent a boundary survey and is not for land transfer.

LEGEND

- Indicates a set 5/8" rebar with no cap
- Indicates a set "MAG" nail with a washer stamped "LATTO 3466"
- Indicates a found right-of-way monument
- Indicates a calculated point (No monument found or set)
- Impacted Area boundary

LINE	BEARING	DISTANCE
L1	S 31°40'49" W	205.54'
L2	S 06°43'37" W	95.39'
L3	S 17°30'15" W	55.26'
L4	S 39°19'50" W	71.85'
L5	S 35°47'35" W	259.28'
L6	S 41°08'01" W	72.42'
L7	S 58°58'14" W	132.94'
L8	S 70°18'16" W	156.17'
L9	N 37°13'07" W	382.51'
L10	S 51°06'57" W	446.95'
L11	N 36°40'03" W	341.69'
L12	N 51°55'01" E	444.45'
L13	N 36°52'06" W	396.73'
L14	S 52°38'26" W	262.23'
L15	N 35°28'23" W	96.12'
L16	N 35°10'07" W	166.48'
L17	N 54°15'00" E	79.42'
L18	N 34°37'27" W	428.15'
L19	N 52°39'41" E	159.51'
L20	N 48°59'31" E	84.97'
L21	N 52°58'35" E	1238.41'
L22	S 37°13'19" E	240.14'
L23	S 34°21'34" E	200.25'
L24	S 37°13'19" E	1008.84'
L25	S 31°40'49" W	373.67'



BEARING DATUM
KY GRID SINGLE ZONE
Designated meridian is based on G.P.S. observations taken on December 19, 2012. Kentucky Single Zone 1600
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Geoid Model: G09US
G.P.S. Unit: Trimble R8-2, Dual Frequency
Method: Network RTK
Horizontal Precision: 0.025'
Lambert Conformal Conic 2

NOTES
1. A full title search was not requested of performed for this drawing. Properties shown hereon are subject to all legal easements, right-of-ways, defects, liens, adverse claims, encumbrances, covenants and restrictions, which a title search may reveal, whether shown on this plat or not.

400 200 0 400 800
Graphic Scale: 1" = 400 feet

LAND SURVEYORS CERTIFICATION
I HEREBY CERTIFY THAT THIS DRAWING WAS DONE BY ME OR PERSONS UNDER MY DIRECT SUPERVISION BY MEANS OF G.P.S. AND CONVENTIONAL TOTAL STATION OBSERVATIONS ALONG A RANDOM TRAVERSE LINE AND AND WAS NOT ADJUSTED. THIS DRAWING IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. THIS PLAT MEETS OR EXCEEDS THE STANDARDS OF GOVERNING AUTHORITIES.

Joel B. Latto 6-5-2015
JOEL B. LATTO, KY PLS #3466 DATE

IMPACTED AREA DETERMINATION FOR

Property Located at: 2316 Highland Ave., Carrollton, KY 41008
Property Owner: PMC Organometallix
Source of Ownership: D.B. 192, pg. 445

STATE OF KENTUCKY
JOEL B. LATTO
3466
LICENSED PROFESSIONAL LAND SURVEYOR

Prepared by
Ops Engineering LLC
4530 Bishop Lane, Suite 109
Louisville, KY 40218
Phone: (502) 419-8136
www.opsplus.net

THIS DOCUMENT DOES NOT COMPLY WITH 201 KAR 18:150

Scale: 1" = 400'
Drawn by: JG
Date: 01/21/2013
Rev.: 04/24/2013
Rev.: 06/05/2015

Field work completed on: 04/15/2013
Job # AMEC12-173

DESCRIPTION

CORRECTIVE ACTION AREAS DESCRIPTIONS AT

PMC ORGANOMETALLIX, INC. CARROLLTON, KY

(previously owned by ARKEMA INC.)

GENERAL DESCRIPTION NOTES

Corrective Action Areas described herein are all located within the bounds of the "Impacted Area" described in Exhibit B. Said Impacted Area is on part of the property conveyed to PMC Organometallix, Inc. by deed book 192, page 445, dated July 25, 2013, of record in the office of the Carroll County Clerk in Carrollton, KY. Said property having a mailing address of 2316 Highland Avenue (aka US Highway 42), Carrollton, KY 41008.
Designated Meridian for the following descriptions is based on G.P.S. observations on the monuments set on December 19, 2012. G.P.S. data is as follows: KY single zone 1600; Horizontal datum is NAD83; Geoid model is USG2009; Network RTK; Horizontal precision error does not exceed 0.067'; Lambert Conformal Conic 2 parallel; and the G.P.S. unit was a Trimble R8-2, dual frequency receiver. "SPC" are Kentucky State Plane Coordinates relative to the aforementioned Designated Meridian.
An "IPC set" is a 5/8" diameter, 18" long iron rebar set flush with the ground with a yellow plastic cap, stamped "Joel Latto KY PLS 3466". A "Magnail" is a magnetic core survey nail, approximately 1.25" in length, stamped "mag" with a aluminum disk stamped "3466 Latto". An "X-cut" set is an X shaped scribe, approximately 3" long, cut in a concrete surface. A "drillhole" is a ¼" hole drilled into concrete.

Area 1 – SWMU 22 Former East Tank Farm Area

Area 1 is located 66' +/- south east of buildings B21, B20, B23 & B42 and 14' +/- south east of B51.

Beginning at a magnail set at SPC N: 4,138,735.53, E: 5,094,215.78 ; Thence S 37°15'46" E 113.56' to a magnail set; Thence S 52°59'00" W 192.92' to a magnail set; Thence N 36°35'37" W 113.47' to a X-cut set; Thence N 52°57'19" E 191.59' the point of beginning, containing 21,824 Sq. Ft. or 0.501 Acres +/-.

Area 2 – B3 Trench Area

Area 2 is located at the south west corner of building B3 and abuts the north edge of building B45.

Beginning at a drillhole set near the north face of building B45 at SPC N: 4,138,509.46, E: 5,093,683.26; Thence leaving said north face N 36°32'12" W 27.00' (passing a witness monument drillhole set at 17.35') to a point; Thence N 53°27'48" E 20.00' (passing through the west wall of building B3 at 7.24' to a point; Thence S 36°32'12" E 27.00' (pasing through a south wall of building B3 at 9.21') to a point at the interior corner of buildings B3, B27 and B45; Thence with a line near the north face of building B45, S 53°27'48" W 20.00' to the point of beginning, containing 540.0 Sq. Ft. or 0.012 Acres +/-.

Area 3 – TRS Area

Area 3 is located adjacent to and north west of building B52.

Beginning at a railroad spike set at SPC N: 4,137,938.42, E: 5,094,135.78; Thence N 52°42'57" E 10.81' to Mag nail set in the edge of an asphalt drive; Thence with said edge of S 36°51'26" E 104.60' to a magnail set; Thence S 52°50'29" W 10.17' to a railroad spike set at the north east corner of building B52; Thence with a line near the face of said B52, S 52°51'15" W 163.15' (passing the north west corner of said B52 at 100.00') to an IPC set; Thence N 37°12'49" W 30.27' to a railroad spike set (said spike set also being the north east corner of Area 4 defined below); Thence N 36°26'30" W 15.89' to an IPC set; Thence N 53°14'36" E 28.40' to an IPC set; Thence N 36°12'31" W 7.45' to an IPC set; Thence N 53°05'09" E 54.30' to an IPC set; Thence N 36°36'05" W 50.51' to an IPC set; Thence N 52°13'39" E 79.57' to the point of beginning, containing 13,643 Sq. Ft. or 0.313 Acres +/-.

Area 4 – B-65 Area

Area 4 is located south and west of building B52.

Beginning at a magnail set at SPC N: 4,137,703.40, E: 5,094,313.35; Thence S 52°48'55" W 249.95' to a railroad spike set; Thence N 37°01'36" W 220.11' to a railroad spike set; Thence N 52°39'07" E 86.80' to a railroad spike set in the west line of and as a common corner to Area 3 described above; Thence S 37°12'49" E 30.27' to an IPC set at the south west corner of said area 3; Thence S 37°20'08" E 100.00' to an IPC set; Thence N 52°38'31" E 162.67' to a railroad spike set; Thence S 36°55'59" E 90.58' to the point of beginning, containing 33,899 Sq. Ft. or 0.778 Acres +/-.

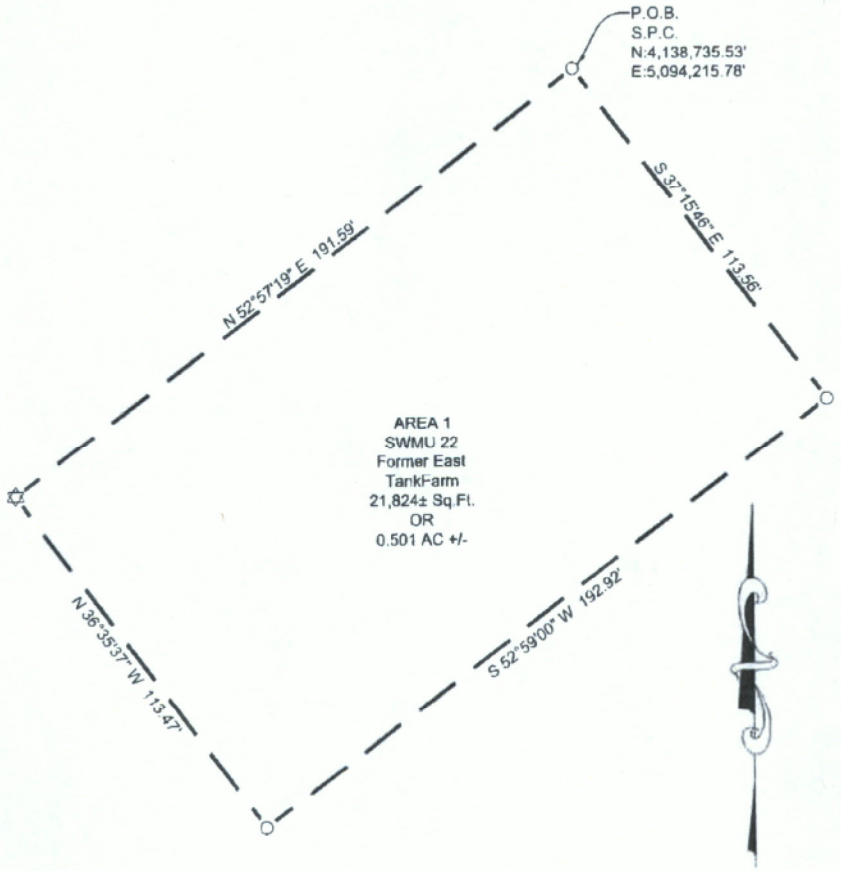
All 4 Corrective Action Areas being on part of property acquired by PMC Organometallix, Inc. by deed book 192, page 445, dated July 25, 2013, of record in the office of the Carroll County Clerk, Carrollton, KY.

This document is intended to create Corrective Action Area boundaries shown for the client listed below. This document does not represent a boundary survey and is not for land transfer.

LEGEND

- Indicates a set rebar (5/8"x18") with a yellow plastic cap stamped "Joel Latto KY PLS 3466" (Unless otherwise noted)
- Indicates a set 1-1/2" "MAG" nail with a disk stamped "3466 - LATTO"
- Indicates a set railroad spike
- Indicates a set "X" cut in concrete
- Indicates a calculated point (No monument found or set)
- Corrective Action Area boundary

BEARING DATUM
KY GRID SINGLE ZONE
Designated meridian is based on G.P.S. observations taken on December 19, 2012
Kentucky Single Zone 1600
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Geoid Model: G09US
G.P.S. Unit: Trimble R8-2, Dual Frequency
Method: Network RTK
Horizontal Precision: 0.011'
Lambert Conformal Conic 2



NOTES
1. A full title search was not requested of performed for this drawing. Properties shown hereon are subject to all legal easements, right-of-ways, defects, liens, adverse claims, encumbrances, covenants and restrictions, which a title search may reveal, whether shown on this plat or not.

40 20 0 40 80

Graphic Scale: 1" = 40 feet

LAND SURVEYORS CERTIFICATION
I HEREBY CERTIFY THAT THIS PLAT OF DRAWING WAS DONE BY ME OR PERSONS UNDER MY DIRECT SUPERVISION BY MEANS OF DIRECT G.P.S. OBSERVATIONS AND WAS NOT ADJUSTED. THIS DRAWING IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. THIS PLAT MEETS OR EXCEEDS THE STANDARDS OF GOVERNING AUTHORITIES

Joel B. Latto 6-5-2015

JOEL B. LATTO, KY PLS #3466 DATE

STATE OF KENTUCKY
JOEL B LATTO
3466
LICENSED PROFESSIONAL LAND SURVEYOR

CORRECTIVE ACTION AREAS FOR

Property Located at: 2316 Highland Ave., Carrollton, KY 41008
Property Owner: PMC Organometallix, Inc.
Source of Ownership: D.B. 192, Pg. 445

Prepared by
Ops Engineering LLC
4530 Bishop Lane, Suite 109
Louisville, KY 40218
Phone: (502) 419-8136
www.opsplus.net

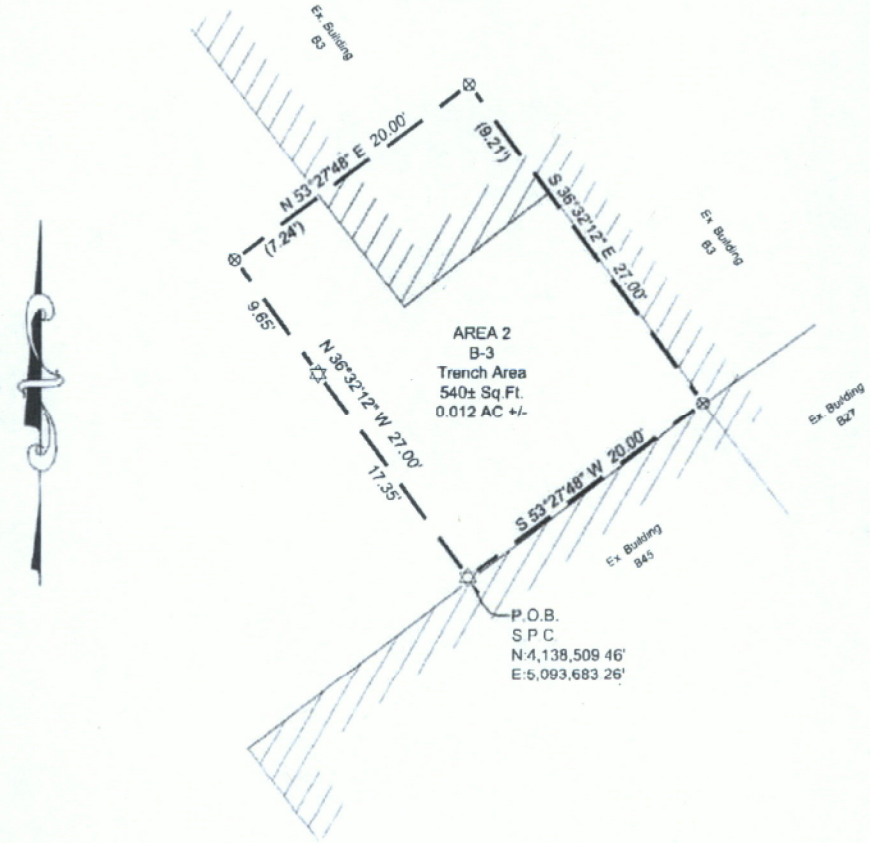
Scale: 1"= 10'	
Drawn by: JG	
Date: 01/21/2013	
Rev.: 06/05/2015	
Field work completed on: 12/19/2012	
Job # AMEC12-173	

This document is intended to create Corrective Action Area boundaries shown for the client listed below. This document does not represent a boundary survey and is not for land transfer.

LEGEND

- Indicates a set rebar (5/8"x18") with a yellow plastic cap stamped "Joel Latto KY PLS 3466" (Unless otherwise noted)
- Indicates a set 1 1/2" "MAG" nail with a disk stamped "3466 LATTO"
- Indicates a set railroad spike
- Indicates a set drillhole in concrete
- Indicates a calculated point (No monument found or set)
- Corrective Action Area boundary

BEARING DATUM
KY GRID SINGLE ZONE
Designated meridian is based on G.P.S observations taken on December 19, 2012.
Kentucky Single Zone 1600
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Geoid Model: G09US
G.P.S. Unit: Trimble R8-2, Dual Frequency
Method: Network RTK
Horizontal Precision: 0.025'
Lambert Conformal Conic 2



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10 5 0 10 20
Graphic Scale: 1" = 10 feet

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Joel B. Latto 6-5-2015
JOEL B. LATTO, KY PLS #3466 DATE

CORRECTIVE ACTION AREAS FOR

Property Located at: 2316 Highland Ave., Carrollton, KY 41008
Property Owner: PMC Organometallix, Inc.
Source of Ownership: D.B. 192, Pg. 445

STATE of KENTUCKY
JOEL B. LATTO
3466
LICENSED PROFESSIONAL LAND SURVEYOR

Prepared by
Ops Engineering LLC
4530 Bishop Lane, Suite 109
Louisville, KY 40218
Phone: (502) 419-8136
www.opsplus.net

THIS DOCUMENT DOES NOT COMPLY WITH 201 KAR 18:150

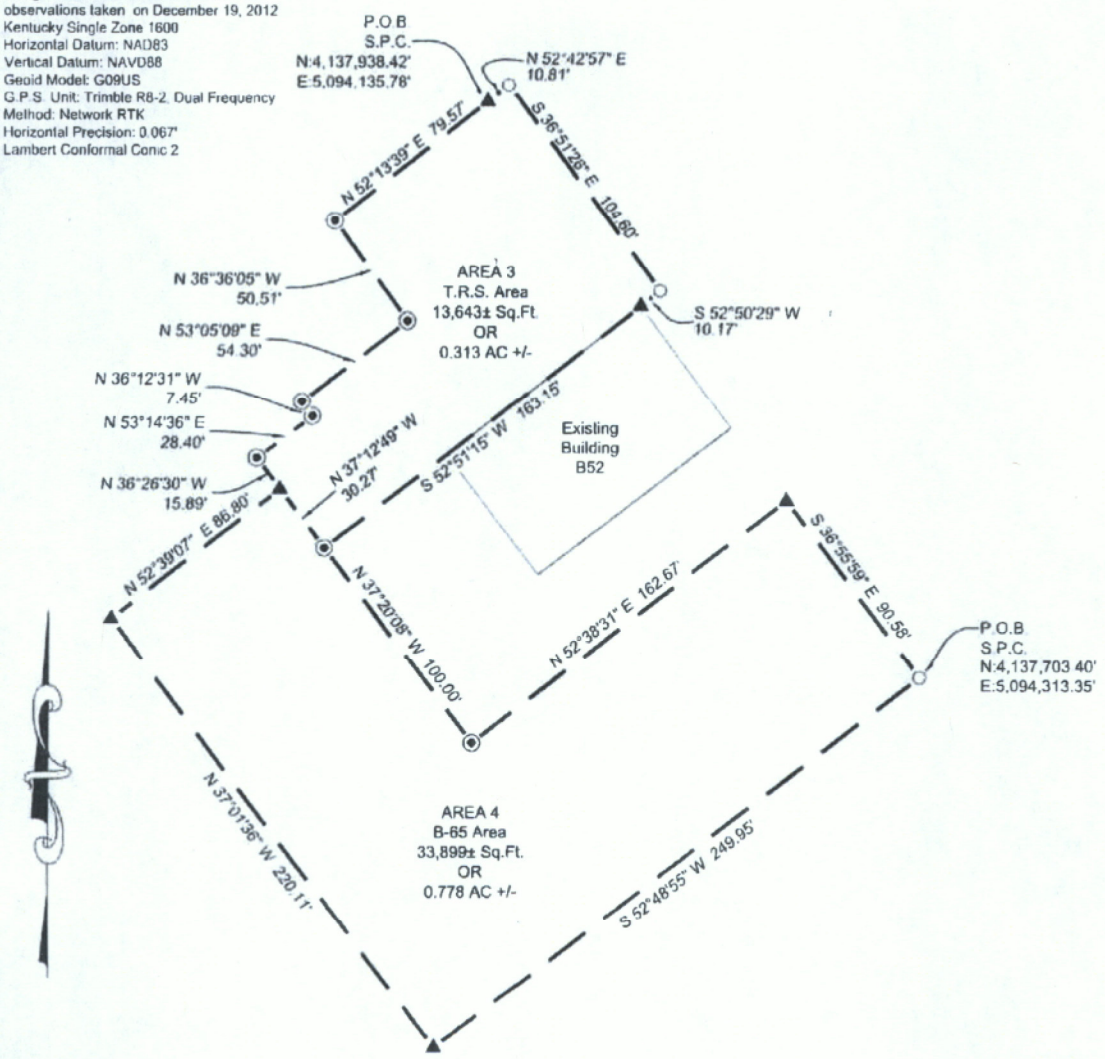
Scale: 1"= 10'	
Drawn by: JG	
Date: 01/21/2013	
Rev : 06/05/2015	
Field work completed on: 12/19/2012	
Job # AMEC12-173	

This document is intended to create Corrective Action Area boundaries shown for the client listed below. This document does not represent a boundary survey and is not for land transfer.

LEGEND

- Indicates a set rebar (5/8"x18") with a yellow plastic cap stamped "Joel Latto KY PLS 3466" (Unless otherwise noted)
- Indicates a set 1-1/2" "MAG" nail with a disk stamped "3466 LATTO"
- Indicates a set railroad spike
- Indicates a set "X" cut in concrete
- Indicates a calculated point (No monument found or set)
- Corrective Action Area boundary line

BEARING DATUM
KY GRID SINGLE ZONE
Designated meridian is based on G.P.S. observations taken on December 19, 2012
Kentucky Single Zone 1600
Horizontal Datum: NAD83
Vertical Datum: NAVD88
Geoid Model: G09US
G.P.S. Unit: Trimble R8-2, Dual Frequency
Method: Network RTK
Horizontal Precision: 0.067'
Lambert Conformal Conic 2



NOTES
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60 30 0 60 120

Graphic Scale: 1" = 60 feet

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Joel B. Latto 6-5-2015
JOEL B. LATTO, KY PLS #3466 DATE

STATE OF KENTUCKY
JOEL B. LATTO
3466
LICENSED PROFESSIONAL LAND SURVEYOR

CORRECTIVE ACTION AREAS FOR

Property Located at: 2316 Highland Ave., Carrollton, KY 41008
Property Owner: PMC Organometallix, Inc.
Source of Ownership: D.B. 192, Pg. 445

Prepared by
Ops Engineering LLC
4530 Bishop Lane, Suite 109
Louisville, KY 40218
Phone: (502) 419-8136
www.opsplus.net

THIS DOCUMENT DOES NOT COMPLY WITH 201 KAR 18:150

Scale:	1" = 10'
Drawn by:	JG
Date:	01/21/2013
Rev :	06/05/2015
Field work completed on:	12/19/2012
Job #	AMEC12-173

Rev. 1, 3/2/18
Project 170027

ATTACHMENT B
HEALTH AND SAFETY PLAN

HEALTH AND SAFETY PLAN

The attached Health and Safety Plan (HASP) will be used as the base line HASP for the construction activities related to Corrective Action and has been prepared in accordance with OSHA requirements for remediation activities. Each contractor completing intrusive work in Corrective Action Areas will be required to complete work in accordance with an appropriate HASP. The contractor can develop, implement and update (as needed) the HASP specific to the specific job requirements or the contractor can adopt the attached HASP if, after review, it will provide appropriate protection of its employees for the specific planned activities. The HASP will be reviewed and updated as necessary prior to initiation of construction activities by the specific contractors doing intrusive work within Corrective Action Areas of the site. Any developed HASPs or updates will be provided to KDWM.

Contractors conducting intrusive activities at Corrective Action Areas, will be required to use personnel trained for hazardous waste operations under the OSHA HAZWOPER Standard (29 CFR 1910.120), and will be responsible for developing, or review and potentially updating the base line HASP and implementing the HASP following the guidelines summarized in this Appendix. The HASP shall conform to all requirements under 29 CFR 1910.120, and 29 CFR 1926. At a minimum the plan shall:

- Name key personnel and alternates responsible for site safety.
- Describe risks associated with each operation conducted.
- Confirm that personnel are adequately trained to perform their job responsibilities and to handle the specific hazardous situations they may encounter.
- Describe the protective clothing and equipment to be worn by personnel during various site operations.
- Describe any site specific medical surveillance requirements.
- Describe the program for periodic air monitoring, personnel monitoring, and environmental sampling (if needed).
- Describe the actions to be taken to mitigate existing hazards to make the work environment less hazardous.
- Define site control measures and include a site map.
- Define means to monitor and protect the surrounding areas.
- Establish decontamination procedures for personnel and equipment.
- Set forth the site's Standard Operating Procedures for Health and Safety.

The facility or contractor will be required to follow the HASP requirements or develop, implement and update (as needed) their own HASP specific to the specific job requirements. Each contractor is solely responsible for the health and safety of its employees.

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Health and Safety Plan

PMC Organometallix
(Formerly Arkema)
Carrollton, Kentucky Facility

March 2018 (Revision 1)

Prepared for:
Arkema Inc.
900 First Ave.
King of Prussia, PA. 19406

1600 Crystal Run Road, Suite 101
Middletown, NY 10941
(845) 695-0209

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SITE SPECIFIC HEALTH AND SAFETY PLAN

SECTION 1: GENERAL INFORMATION & DISCLAIMER

CLIENT NAME:	PROJECT NAME:
PMC Organometallix Inc. / Arkema Inc.	**PMC Organometallix Inc. (Formerly Arkema) Facility**

PROJECT MANAGER: TBD

SAMPLING TEAM LEADER: TBD

SITE HEALTH & SAFETY OFFICER: TBD

PREPARED BY: DATE: **05/02/2017**

NOTE:

This Site Specific Health and Safety Plan (SSHASP) has been prepared for work at the site referenced below. The plan is written for the specific site conditions, purposes, tasks, dates and personnel specified and must be amended and reviewed by those named in Section 16 if these conditions change.

Any other Contractors or Subcontractors working at the site are required to operate under their own Health and Safety Plan, which is at least as comprehensive as this SSHASP.

SECTION 2: PROJECT INFORMATION

(1) SITE INFORMATION

Site Name: **PMC Organometallix, Inc. Facility**

Address: 2316 Highland Avenue	Client Contact: Laura Robinson
Carrollton, KY 41008	Phone No: 502-732-4411 ext. 296

(2) SITE CLASSIFICATION (check, highlight or circle all that apply)

Hazardous (RCRA) X	Hazardous (CERCLA/State)_____	UST/LUST_____
First Entry	Manufacturing_____X_____	Municipal
		POTW_____
Previously Characterized	C and D Landfill_____	Construction
Industrial X	Sanitary Landfill _____	Other

Active X Inactive

Explanations/Details: The PMC Organometallix Inc. Facility located in Carrollton, KY Historical uses for the areas subjected to this HASP include storage of raw materials and hazardous materials.

(3) TASKS & OBJECTIVES (attach additional sheet if necessary):

This SSHASP applies to personnel working at the site on intrusive activities that may be in contact with soils in the Corrective Action Area o. This SSHASP addresses emergency on-site procedures and health and safety related procedures for the specific work activities, and additional requirements in accordance with 29 CFR 1910.120.

The work covered by this SSHASP is related to operation, maintenance, and inspection of Corrective Measures Areas.

TASKS PERFORMED BY OTHERS:

Any contractor or subcontractor conducting work at the Site is responsible for the protection and health and safety of their own employees. Requirements of their HASP must meet or exceed this SSHASP.

(4) PROJECT ORGANIZATION AND COORDINATION – The following personnel are designated to carry out the stated project job functions on site. (Note: One person may carry out more than one job function, not all positions must be filled for each project.)

Job Function	Name & Company	Phone
PROJECT MANAGER	**TBD**	**TBD**
SITE SAFETY OFFICER /PLANT EHS	**TBD**	**TBD**
ALTERNATE SITE SAFETY OFFICER	**TBD**	**TBD**
PUBLIC INFORMATION OFFICER	**N/A**	**N/A**
SITE RECORDKEEPER	**TBD**	**TBD**
ON-SITE PERSONNEL WITH CPR/FA	**TBD**	**TBD**
FIELD TEAM LEADER	**TBD**	**TBD**
FIELD TEAM MEMBERS	**TBD**	**TBD**
PMC ORGANOMETELLIX CONTACT	TBD	
VISITORS (POTENTIAL):	FEDERAL AGENCY REPS (i.e., EPA, OSHA)	
	Others TBD	
	STATE AGENCY REPS	
	LOCAL AGENCY REPS	
SUBCONTRACTORS:	SUBCONTRACTOR(S) SITE SAFETY OFFICERS:	SUBCONTRACTOR SSHASP YES _____ NO_____
TBD	**TBD**	

All visitors /contractors sign in / out at the main gate. Facility workers are required to badge in
All visitors and workers shall take site-specific safety training on an annual basis
See Attachment 2-1 for details on site-specific policies and procedures. Workers must follow plant requirements

A Job Safety Analysis (JSA) Form will be prepared daily by the SSO/PLANT HES to discuss and document the safety issues for the work being performed that day. The JSA Form will be reviewed and signed by personnel working in Corrective Action Areas. The JSA Form is presented as Attachment 2-2.

(5) ONSITE CONTROL (Prevailing wind directions, exclusion zones, etc.) (attach additional sheet if necessary)

Work zone will be established around each work area. As necessary, exclusion, contaminant reduction, and support zones will be identified. Traffic cones will be utilized in traffic areas.

SECTION 3: PHYSICAL HAZARDS INFORMATION

(1) IDENTIFY POTENTIAL PHYSICAL HAZARDS TO WORKERS

___	Confined Space	___	Steep/uneven terrain	___	Surface Water
X	Heavy Equipment	X	Heat Stress	___	Drum Handling
X	Moving Parts	X	Extreme Cold	X	Noise
X	Heavy Lifting	___	Ionizing Radiation	___	Non-Ionizing Radiation
X	Electrical	X	Traffic	___	Elevated Work Surface
X	Overhead Hazards	___	Marine/Open Water Navigation	___	Trenching
X	Underground Utilities	X	Biological Hazards – Ticks	___	Sewage

(2) POTENTIAL SAFETY EQUIPMENT

___	Explosimeter (See Env. Monitoring)	X	Barrier Tape	___	Lights
___	Fall Protection Equipment	___	Traffic Cones	___	Lights – emergency
___	Confined Space Equipment	X	A-B-C Fire Extinguisher	X	Communications – On Site
___	Ladder	X	Tick Repellant	___	Communications – Off Site
X	First Aid Kit	___	Snake Bite Kit	___	Lockout/ Tagout
___	Eye Wash	___	Floatation Device (USCG)		
___	Emergency Shower	___	Emergency Air Horn		

Other:

X	A personal data (hand-held) RAM meter for dust monitoring	X	Other - Photo Ionization Detector (PID), and Draeger tubes
___	A TSI air velocity meter for logging wind speed		
___	A wind sock for wind direction		

(3) SPECIFIC PHYSICAL HAZARD PROCEDURES

See Attachment 3-1 for Physical Hazards & Procedures

SECTION 4: CHEMICAL HAZARDS INFORMATION

(1) IDENTIFIED CHEMICAL HAZARDS

Known or suspected hazardous/toxic materials (attach historical information, physical description, map of contamination, tabulated data and SDS sheets, if available). Materials brought to the site for the operation, maintenance, and monitoring of the corrective measures (decontamination solvents, gases, etc.) are addressed in Section 6.

Table 4-1 presents site soil impacts that represent a potential hazard and their exposure limits. This list is based on parameters that will remain in Impacted Areas following implementation of the Corrective Measures. Attachment 7-1 details specific air monitoring requirements based on potential exposure to hazardous vapors.

Media	Substances Involved	Characteristics	Estimated Concentrations	PEL*
Soil	See Attached Table 4-1a		See Attached Table 4-1a	See Attached Table
air	Fugitive dust		N/A	15 T, 5 Resp. mg/m^3

*Unless otherwise noted, the TLV (Threshold Limit Value) from the American Conference of Governmental Industrial Hygienists is listed unless the PEL (Permissible Exposure Limit), designated by OSHA, is lower.

(2) DESCRIBE POTENTIAL FOR CONTACT WITH EACH MEDIA TYPE FOR EACH OF THE TASKS LISTED IN SECTION 2.3

The potential routes of exposure to the chemicals found in the soil include: 1) inhalation of vapors from the work activities; 2) direct dermal (skin) contact or absorption of contaminants; and 3) ingestion by hand-to-mouth transfer of constituents.

For inhalation, prevention of exposure is accomplished by appropriate control measures and/or through the appropriate use of air-purifying or air-supplying respirators. See Section 7 for specific procedures.

For direct dermal contact or absorption, prevention of exposure is accomplished by the proper selection of protective clothing. Section 5 presents PPE requirements for this project.

For ingestion, prevention is accomplished through good hygiene practices, frequent hand washing, and enforcement of rules regarding eating, drinking and smoking.

Use of appropriate PPE and environmental monitoring will minimize or prevent potential overexposure to chemical hazards. Accidental overexposure to the chemicals listed in Table 4-1 can result in mild to severe reactions and if necessary appropriate emergency procedures should be implemented as presented in Section 13. Immediate medical attention is warranted if any worker exhibits dizziness, shortness of breath or other sudden health issue.

SECTION 5: PROTECTIVE EQUIPMENT LIST						
TASK	RESPIRATORS & CARTRIDGE	USE	CLOTHING	GLOVES	BOOTS	OTHER
Intrusive activities within cap areas	**APR, O**	**UP- See Section 7**	**long sleeves T**	**--**	**S**	**G (plant production areas only), S (outside plant production areas), H, N, V (as required)**
Potential contact with perched water (O&M of perched water collection system and disposal)	**APR, O**	**UP- See Section 7**	**long sleeves T**	**T**	**S**	**G, H**
RESPIRATORS	APR CARTRIDGES	USE	CLOTHING	GLOVES	BOOTS	OTHERS
B = SCBA APR = Air purifying respirator D = N/A E = Escape AL = Airline	O = Organic Vapor G = Organic vapor/acid gas A = Asbestos P = Particulate C = Combination organic vapor & particulate OTH = Other (Mercury vapor cartridge with ESLI)	Cont = Continuous UP = Upgrade	T = Tyvek P = PE Tyvek S = Saranex C = Cover-alls	B = Butyl L = Latex N = Neo T = Nitrile V = Viton CN = Cotton P = PVC PA = Polyvinyl SS = Silver shield	F = Firemans L = Latex N = Neo S = Safety	F = Face Shield G = Goggles H = Hard hat S = Safety glasses N = Hearing Protection L – Life jacket V = Safety Vest

SECTION 6: HAZARD COMMUNICATION PROGRAM

If chemicals are introduced to the site (e.g., decontamination liquids, preservatives, etc.), any new chemical must be approved and SDS provided prior to bringing on site. Attach Safety Data Sheets (SDSs). The Plant HES Manager and Site Safety Officer will review this information with field personnel prior to the start of the project.
Alconox, acetone, nitric acid

SECTION 7: ENVIRONMENTAL MONITORING

(1) The following environmental monitoring instruments may be used on site during intrusive activities.

MiniRAE 2000 PID (or equivalent), Personal data RAM (or equivalent dust measuring device), LEL Explosimeter or other multi-gas meter, as required by the nature of the work.
Specific monitoring requirements to be developed for the specific area and known impacts present

(2) Monitoring equipment is to be calibrated according to manufacturers' instructions. Record calibration data and air concentrations in the Health and Safety on-site log book.

(3) Recommended Action Levels for Upgrade or Downgrade of Respiratory Protection or Site Shutdown and Evacuation.

See Attachment 7-1 for details.

SECTION 8: HEALTH AND SAFETY TRAINING AND MEDICAL MONITORING PROGRAM

The project staff is included in the Health and Safety training program and, as applicable, the medical monitoring program. A current list, including training dates will be provided when staff has been determined.

HAZWOPER TRAINING

Name	MEDICAL (Date)	INITIAL (Hrs./Date)	REFRESHER (Date)	SUPV (Date)	CPR/FA/BBP (Dates)	FIT TEST (Make/Size / Type/Date)

SECTION 9: PERSONAL MONITORING

The following personal monitoring will be in effect on site: **None Anticipated**

A copy of personal monitoring results (if collected) may be retained in accordance with OSHA requirements

SECTION 10: CONFINED SPACE ENTRY

(1) WILL CONFINED SPACE ENTRY TAKE PLACE? Yes _____ No **X**

If yes, attach **Confined Space Entry Program** available from the Health and Safety Coordinator and the facility HES officer

SECTION 11: COMMUNICATIONS PROCEDURES

The following standard hand signals will be used in case of failure of radio communications or other circumstances where voice communication may not be possible:

Hand gripping throat	Out of air, can't breathe
Grip partner's wrist or both hands around wrist	Leave area immediately
Hands on top of head	Need assistance
Thumbs up	OK, I am all right, I understand
Thumbs down	No, negative

SECTION 12: DECONTAMINATION PROCEDURES

Personnel and equipment leaving the Exclusion Zone shall be decontaminated. The Site Safety Officer is responsible for monitoring adherence with the decontamination plan described below: Attach sketch of decontamination area as appropriate.

(1) **See Attachment 12-1 for details**

(2) _____

(3) _____

Other _____

The following decontamination equipment is required:

Distilled water, Alconox, bucket, tarp, brushes, garbage bags, paper towels, gloves, drum

SECTION 13: EMERGENCY PROCEDURES

(1) The following standard emergency procedures will be used by onsite personnel. The Site Safety Officer shall be notified of any onsite emergencies and be responsible for checking that the appropriate procedures are followed. See Section 14 for additional emergency information.

Personnel Injury in the Exclusion Zone: Upon notification of an injury in the Exclusion Zone, the designated emergency signal – Honk vehicle horn 3 times, shall be sounded. Site personnel shall assemble at an upwind location to be designated by the Site Safety officer. The Site Safety Officer and Field Team Leader should evaluate the nature of the injury, and the affected person should be decontaminated to the extent possible prior to movement to the Support Zone.
The Plant emergency response team is to be notified and will respond. The SSO/PLANT HES shall call 911, if applicable, or the designated emergency number for the site as instructed by Site Manager. No persons shall enter/reenter the Exclusion Zone until the cause of the injury or symptoms are determined.

Personal Protective Equipment Failure: If any site worker experiences a failure or alteration of protective equipment that affects the protection factor, that person and others within the Exclusion Zone shall immediately leave the Exclusion Zone. Reentry shall not be permitted until the equipment has been repaired or replaced. If PPE failure results in a chemical overexposure to the worker, then appropriate emergency procedures will be implemented as above.

Fire/Explosion: Upon notification of a plant emergency (e.g., fire or explosion) site personnel shall assemble at the site's front gate or other plant designated assembly point. The PLANT HES (or others in a life threatening situation) shall call plant emergency number (ext 508) to activate the emergency response team. and personnel moved to a safe distance from the involved area.

Other Equipment Failure: If any other equipment on site fails to operate properly, the Field Team Leader and Site Safety Officer shall be notified and then determine the effect of this failure on continuing operations on site. If the failure affects the safety of personnel or prevents completion of the Work Plan tasks, personnel shall leave the Exclusion Zone until the situation is evaluated and appropriate actions taken.

Emergency escape routes are to be designated for use in those situations where egress from the Exclusion Zone cannot occur through the decontamination line (attach map, if available):

N/A – in case of emergency can proceed through Exclusion Zone

(2) In situations when an onsite emergency results in evacuation of the Exclusion Zone, personnel shall not reenter until:

1. The conditions resulting in the emergency have been corrected.
2. The hazards have been reassessed by the SSO/PLANT HES.
3. The Site Safety Plan has been reviewed by the SSO/PLANT HES and Corporate Health and Safety Manager
4. Site personnel have been briefed on any changes in the Site Safety Plan by the SSO/PLANT HES.

(3) Accident/Incident Reports – The following information will be conveyed by the SSO/PLANT HES to the Project Manager immediately and followed up as soon as possible with a written **Incident Report and Statement of Injury ATTACHMENT 13-1** which shall include the following

A brief description of the emergency
The location, time and date of the event/accident/injury
The number of persons injured and the severity of the injuries
The name(s), company and positions of the injured person(s)
The name and location of the medical facility where the injured person(s) were taken
The name of the person reporting the event/accident/injury.

SECTION 14. EMERGENCY INFORMATION

TO BE POSTED IN SITE-TRAILER/OFFICE AND/OR IN FIELD VEHICLES

(1) LOCAL RESOURCES **(PLANT EMERGENCY NUMBER (ext 508 ON ANY PLANT PHONE) IS TO BE USED AS THE PRIMARY EMERGENCY NOTIFICATION). BACKUP NUMBERS ARE PROVIDED BELOW TO BE USED OUTSIDE OF PLANT AREAS)**

Ambulance (name):	**Carroll County Ambulance**	Phone:	**911 or (502) 732-7038**
Hospital (name):	**Carroll County Memorial Hospital**	Phone:	**911 or (502) 732-4321**
Police (local or state):	**Carrollton Police Department**	Phone:	**911 or (502) 732-6621**
Fire Dept. (name):	**Carrollton Fire Department**	Phone:	**911 or (502) 732-7041**
HAZ MAT Responder:		Phone:	
Nearest phone:	**Plant Phone or Radio**		
On-Site CPR/FA(s):	**TBD**		

The hospital is **5** minutes (**1.6** miles) from the site.

(2) DIRECTIONS TO NEAREST HOSPITAL – ATTACH MAP: **See Attachment 14-1**

DIRECTIONS TO NEAREST POLICE STATION: **See Attachment 14-2**

(3) CORPORATE RESOURCES

(4) WHOM TO NOTIFY IN CASE OF ACCIDENT:

PLANT H&S Officer: **TBD**

Project Manager: **TBD**

SECTION 15: SAFE WORK PRACTICES

THE FOLLOWING PRACTICES MUST BE FOLLOWED BY PERSONNEL ON SITE

1. Adherence to plant PPE requirements and emergency procedures.
2. Smoking, eating, chewing gum or tobacco, or drinking are forbidden except in clean or designated areas.
3. Ignition of flammable liquids within or through improvised heating devices (e.g., barrels) is forbidden.
4. Contact with samples, excavated materials, or other impacted materials must be minimized.
5. Use of contact lenses is prohibited at all times.
6. If drilling equipment is involved, know where the 'kill switch' is.
7. All electrical equipment used in outside locations, wet areas or near water must be plugged into ground fault circuit interrupter (GFCI) protected outlets.
8. Good housekeeping practices are to be maintained.
9. Where the eyes or body may be exposed to corrosive or acidic materials or other irritants, suitable facilities for quick drenching or flushing with water shall be available for immediate use.
10. In the event of extreme or hazardous weather-related working conditions (i.e., thunderstorm, limited visibility, extreme cold or heat) field tasks will be suspended at the discretion of the SSO/PLANT HES until conditions improve or appropriate protection from the elements is provided.

Site Specific Safe Work Practices:

All site security rules and procedures must be strictly adhered to.

SECTION 16: EMPLOYEE ACKNOWLEDGEMENTS

PLAN REVIEWED BY: DATE:

Corporate Health & Safety:

Project Manager:

Team Leader:

I acknowledge that I have read the information on this Site Specific Health and Safety Plan and all attachments. I understand the site hazards as described and agree to comply with the contents of this Plan.

_____ _____

EMPLOYEE (print name) SIGNATURE DATE

Table 4-1a
Maximum Concentrations, Soils, Below Caps

Chemical	Maximum Concentration	Unit	PEL	Unit
Antimony	2,000	mg/kg	0.5	mg/m^3
Benzene	53	mg/kg	1	PPM
bis(2-ethylhexyl)Phthalate	1,200	mg/kg	5	mg/m^3
Ethylbenzene	580	mg/kg	100	PPM
Tetrachloroethene	400	mg/kg	100	PPM
Trichloroethene	3.4	mg/kg	100	PPM
Xylenes, Total	5,100	mg/kg	100	PPM

ATTACHMENTS

Attachment 2-1
Site-Specific Policies and Procedures

Emergency Evacuation Procedures: 29 CFR 1910.38(c)(2)

Evacuation of those not actively involved in response to an emergency is an important way to protect individuals from injury. Partial or total evacuations are appropriate if a release or spill of hazardous materials could result into a major fire, explosion or dangerous concentration of toxic vapors.

Internal assistance provided by in-plant ERT personnel is typically summoned by pulling a manual alarm station and activating the plant's coded fire alarm system (see Attachment 1-1 for alarm codes). When a non-evacuation coded alarm has been sounded, all non ERT members working in the area covered by that code must cease operations and report to their in-plant rally point (see Attachment 5-1 for in-plant rally points). All contract employees (contractor personnel, truck drivers, etc.) are to evacuate the plant whenever any alarm code sounds.

Alternatively, if internal assistance is summoned by calling the Security Station using the in-plant emergency phone number (x208), Security will direct the IC/ERT to the emergency site via radio or paging system. Once on scene, based on the status and severity of the situation, the IC or a designee may elect to pull an alarm, and/or call for a partial or a total plant evacuation.

If the IC believes certain areas of the plant are threatened by the emergency, he will notify Security Personnel by radio and provide a list of areas to evacuate. The Security Personnel will then announce over the paging system all areas to be evacuated and any additional pertinent information as instructed by Incident Commander. Alternatively, the IC may decide that the entire plant should be evacuated, and request that Security sound the plant evacuation alarm. In either case, the following actions will take place:

1. The guard or PMC ERT member assigned to the guardhouse will close the front gate (north end of the plant). No further entry into plant by visitors, contractors, or delivery trucks will be permitted without a need for their entry.

2. Vehicular traffic within the plant will cease and the roadways will be cleared to allow safe exit of personnel and movement of emergency equipment.

3. Personnel, visitors, and contractors will evacuate upwind or crosswind (using windsocks as a guide to wind direction) and exit through the nearest available gate as soon as practicable:
   a. The main gate
   b. The railroad gate south of the plant

c. The northwest gate near the B10 loading area

Main and alternative evacuation routes with assembly points are shown in Attachment 5-1. The south and west gates are secured using a break away lock. Hammers to break the locks are located in plastic boxes attached to the gate.

5. No persons shall remain on-site or re-enter the location unless specifically authorized by the IC. The PMC personnel remaining within the fenced area will normally include only the IC, PMC ERT members, and plant management.

6. Re-entry into the plant area will be made only after clearance is given by the IC. When directed by the IC, guardhouse personnel will activate the all-clear signal (4-4).

Procedures to be followed by Employees who Remain to Operate Critical Plant Operations before they Evacuate: 29 CFR 1910.38(c)(3)

In the event that evacuation is required of B22 personnel, safe shutdown procedures must be carried out per Attachment 5-2 prior to evacuation. In the event that evacuation is required of B52 personnel, one TRS operator must remain to carry out the procedures per Attachment 5-3 prior to evacuation.

Procedures to Account for Employees after Evacuation: 29 CFR 1910.38(c)(4)

1. As soon as practicable upon arriving at an evacuation holding area, the highest ranking person will prepare a list of all personnel at the holding area (including contractors and PMC ERT members). Alternatively, electronic identification cards may be used along with a Facility Commander System muster report to determine who potentially remains to be accounted for.

2. Upon completion of the personnel list, the person in charge will telephone or radio the list to the front gate. All personnel will remain at the holding area, unless there is a specific reason for not staying in that area.

3. Immediate supervisors, or delegates, are responsible for accounting for those persons reporting to them. Visitors are the responsibility of the employee they are visiting. Contractors are the responsibility of the person administering the individual contracts (e.g. plant contacts). Truck drivers are the responsibility of the warehouse supervisor. Guardhouse personnel may aide in accounting for visitors, contractors, and truckers by reference to the sign-in-sheets.

4. A final tally of persons is the responsibility of either the IC or designee directly delegated the task at the time of the incident. In the event that one or more persons are missing after the headcount has been taken, the IC will refer to the Search and Rescue procedures that follow.

Off-Site Evacuations/Shelter in Place Procedure:

Significant chemical releases, fires, and/or explosions require the notification of Carroll County Dispatch by the IC or their designee. At the time of notification, the Dispatcher will require basic information about the emergency (type of emergency, chemicals involved, approximate quantities). The dispatcher will also ask whether additional assistance is required. In the event of or threat of a significant release, local resources (emergency sirens and/or phone notification systems) would be utilized to notify residents of the need of evacuation (per the Carroll County Emergency Operations plan). If evacuation is not feasible, persons in the area would be advised to stay indoors, shut all doors and windows, turn off air conditioning and ventilation, and move to the center of the building until the emergency is over (shelter-in-place).

Search and Rescue Procedure: 29 CFR 1910.38(c)(5)

1. The IC will gather information about missing, lost or overdue person(s) (as per the previously described evacuation accounting procedures). The last known and/or probable location(s) of the missing person(s) will be determined to the extent feasible. The areas of potential danger will be determined, based on the emergency situation.

2. The IC will designate an individual to notify Plant Staff (typically the ERT member reporting to Security) of the person(s) missing, lost or overdue.

3. If safe to do so, designate a Search and Rescue team for missing person(s). The rescue team consists of two entry team members and four backup entry team members. Designate a Recorder to monitor and document search details. If available, designate an EMT to assist with potential first aid needs.

4. If a search and rescue is decided upon, determine a plan of action for the search. As needed, obtain plant or building layout maps to assist with developing search plans. Determine appropriate PPE based on the potential hazards (e.g. bunker gear & SCBA, "Level A" or "Level B"). Ensure PPE is available for the entry team

and both backup teams. Ensure entry teams have adequate air monitoring equipment, radios and other equipment needed for the search.

5. Brief your Search and Rescue team of the determined plan of action, including status of the current emergency situation, and the identification and last known location of missing person(s).

6. Entry teams are to remain in visual contact with each other at all times, and report regular updates to the IC via radio. Report any movement, voices, tapping sounds, or unusual noises heard. Refer to missing person(s) as "person #1", "person #2", etc. Do not transmit actual name(s) of the missing persons over radio communications.

7. Upon conclusion of each entry, debrief the IC. As appropriate, document the location(s) searched and revise the plan for additional entries. Ensure any located persons receive appropriate first aid or other medical treatment as necessary.

8. The IC is responsible for concluding the search and rescue once the missing person(s) have been found, or at such time that the plan can not be carried out further due to safety reasons or other emergency circumstances.

1. PURPOSE

This policy provides safe and orderly guidelines for excavating and employees working in excavations that are below the surface of the ground.

2. SCOPE

This policy sets guidelines for this location, PMC Organometallix Inc., Carrollton Plant. All employees and contractors must comply with these guidelines. In the case where the local requirement, or the requirement of OSHA, is less stringent, this policy will prevail.

3. REFERENCE

29CFR Subpart P 1926.650, 651, 652 App. A, B, C, D, E, and F.

4. DEFINITIONS

Angle of Repose - The greatest angle above the horizontal plane at which a material will lie without sliding.

Competent Person - A registered Engineer or a person that fully understands the standard and is capable of identifying hazards and predictable hazard in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees and who has authorization to take prompt corrective measures to eliminate them.

Excavation - Any man made cut, cavity, trench or depression in an earth surface formed by earth removal.

Protection system - A method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or into an excavation, or from the collapse of adjacent structures. Protection systems include support systems, sloping and benching systems, shield systems, and other systems that provide necessary protection.

Trench - A narrow excavation, a trench is less than 15 feet wide.

5. EXCAVATION REQUIREMENTS

A. Prior to opening an excavation a Safe Work Permit and a Confined Space/Excavation Form must be completed.

B. Underground systems
   a. All known underground systems shall be listed by description and expected depth on the permit.
   b. Determine a 4-foot corridor (2 feet on either side of any underground system) for each underground system.
   c. Use of power equipment such as backhoes, pavement breakers, concrete saws, jackhammer, etc. only for surface work, certainly no more than 12 inches below grade within this corridor. Digging parallel to the known path of underground lines for exposure is acceptable.
   d. Until the exact location of an underground system is know, only hand tools may be used within 2 feet of the expected location of the underground system.
   e. Once an underground system has been clearly uncovered and exposed, power equipment may be allowed to dig within 12 inches of the system so long as the system remains in view.
   f. Undermined systems must be supported as necessary to protect the system and / or employees in the excavation.

C. Employees working in excavations
   a. Excavations that include one or more of the following conditions must have a protection system in place before an employee enters the excavation:
      i. Cracks in the walls,
      ii. Chunks of dirt falling off the walls,
      iii. The soil contains pockets of sand or gravel,
      iv. Water is present in the excavation,
      v. Water is seeping into the excavation,
      vi. Sloped layers of soil have a slope of more than 4 horizontal to 1 vertical,
      vii. A thumb will easily penetrate several inches into a large, fresh clump of soil,
      viii. Vibration – e.g. vehicles, trucks, trains, heavy equipment, etc. - may affect the excavation,
      ix. Nearby structures are undermined, or
      x. The excavation is more than 5-feet deep.
   b. Inspections
      i. Before an employee can enter an excavation with a protection system, a competent person must inspect the excavation.
         1. The excavation must be inspected at least once per day before an employee is allowed to enter the excavation.
         2. Inspections must also be made after every rainstorm or other hazard-increasing occurrence.

c. For an excavation with a protection system, all employees in the excavation must stay inside of the protection system.
d. All loose material – e.g. soil, etc - and equipment must be at least 2 feet from the edge of the excavation to prevent material or equipment from falling or rolling into the excavation.
e. When employees are required to be in trenches 4 feet deep or more, an adequate means of exit, such as a ladder or steps, will be provided and located as to require no more than 25 ft of lateral travel.
f. Protection systems
    i. Protection systems include support systems, sloping and benching systems, shield systems, and other systems that provide necessary protection.
    ii. If an excavation is more than 20 feet, a registered professional engineer must design the protective system.
    iii. Benching and Sloping – See the following table for minimum requirements:

Soil Classification	Soil Description	Site Conditions
Stable Rock	Dry, solid rock.	Dry. Remains intact when excavated - not common.
Type A	Dry, strong clay or cemented soil.	Dry. No cracks, no fissures, and no vibration. Not previously disturbed. Layers sloped less than 4 horizontal to 1 vertical. Sides of excavation can be benched or sloped 0.75 horizontal to 1 vertical (68°).
Type B	Dry, medium clay or stable clay mixed with sand / gravel (loam). Rock - Dry, not intact, not stable.	Dry. Cracks, fissures, previously disturbed or vibration. Layers sloped less than 4:1. Sides of excavation can be benched or sloped 1:1 (45°).
Type C	Wet, weak clay or unstable loam. Rock - Wet, not intact, not stable.	Water in trench or water from walls of trench, or layers sloped more than 4:1. Sides of excavation can be sloped 1.5:1 (34°). Sides may not be benched.

g. While the excavation is open, underground installations must be protected, supported or removed as needed to safeguard employees.

h. When employees are required to be in trenches 4 ft deep or more, an adequate means of exit, such as a ladder or steps, will be provided and located as to require no more than 25 ft of lateral travel.
i. No employee shall be permitted underneath a load handled by lifting or digging equipment.
j. When mobile equipment is operated next to an excavation, or when such equipment is required to approach the edge of an excavation, and the operator does not have a clear and direct view of the edge of the excavation, a warning system must be used such as barricades, hand or mechanical signals, or stop logs. If possible, the grade should be away from the excavation.
k. Hazardous Atmospheres
    i. Each excavation must be tested at top, middle, and bottom for oxygen content, combustible gases, and toxic substances. A properly calibrated combustible gas/oxygen analyzer may be used to monitor oxygen and combustible gases. Testing shall be performed in the order of oxygen first, combustibles second, and toxics last.
    ii. If one or more of the following conditions exist a confined space permit is required before a person may enter the excavation:
        1. Oxygen content is less than 19.5% or more than 23.5 %.
        2. Combustibles are above 10% LEL.
        3. Toxic vapors of sufficient concentration to produce 1/8" color change in "poly test tube". Toxic substance level, prior to entry, can normally be determined using a Drager pump and a Drager "poly test tube" (#CH28401). If substances not detectable with a "poly test tube" may be present, additional testing with specific tubes may be necessary. If other tubes are used, follow manufacturer's instructions for concentration determination.
l. If water has accumulated in an excavation or if water is accumulating in an excavation, employees are not to begin or continue to work until the water has been removed or pumps can effectively control the water. A competent person must monitor the water removal equipment while in use to ensure that it is operating properly.
m. Stability of structures
    i. Excavation below the footing or base of any foundation or retaining wall will not be permitted except when:
        1. A support system is used to ensure worker safety and stability of the structure, or
        2. The excavation is in stable rock, or
        3. A registered professional engineer has approved and determined that the structure is far enough away from the excavation so that, it will not be affected by the excavation, or
        4. A registered professional engineer has determined that the excavation work will not pose a hazard to employees.

ii. Sidewalks, pavement and appurtenant structures must not be undermined unless a support system or other method of protection is provided to protect employees from possible collapse of such structures.

n. If a support or shield system is used the system must extend at least 18 inches above the top of the vertical side(s) that the system supports.

I. PURPOSE

To establish minimum standards for safely performing cutting, welding, and any other spark producing work in an environment that has the potential for fire and explosion. Also, this policy addresses the protection of workers from respiratory and physical injuries during these procedures.

II. SCOPE

This policy applies to all PMC Organometallix Inc. employees and contractors performing these functions in the Carrollton Plant.

III. REFERENCE

Welding, Cutting and Brazing; Fire Prevention and Protection - OSHA; 29 CFR 1910.252.

IV. DEFINITIONS

A. Hot Work – Any activity or equipment, which can cause sufficient heat to ignite nearby combustible or flammable materials. This includes, but is not limited to, welding and burning, heat treating, open fires, portable grinders, striking metals, internal combustion engines, soldering irons, non-explosion proof equipment, or any other flame, spark or heat producing equipment.

   NOTE: The activity may or may not be considered Hot Work, depending on the nature of the flammable/combustible material in the area. For example, use of non-explosion proof electrical equipment would be Hot Work where flammable gases or vapors may create an explosive atmosphere, but not if only combustible solids are present. Welding would be Hot Work in either environment.

B. Welding/Cutting /Grinding – Use of any electric or gas welding and cutting equipment or any power cutting or grinding equipment which is capable of igniting combustible solids due to heat radiation, heat conduction, or flying sparks of molten metal.

C. Authorized employees - Are defined as those that have successfully completed classroom training on Hot Work procedures as well as on-the-job training by a competent supervisor, usually a foreman. They also have a complete date in Safety code 155 Hot Work Permits (field training).

D. Minor Fire Hazards - Are defined as work areas where flammable vapors, liquids, and materials are not normally present.

E. Safety Observers – Are properly trained employees who are stationed at the work area until welding/cutting /grinding or spark producing hot work is completed to assist in the event of an emergency and to prevent unauthorized entry into the hazard area.

V. RESPONSIBILITIES

A. Plant Management:

1. Based on fire potentials of plant facilities, establish areas for Hot Work, and establish procedures for cutting and welding in other areas.

2. Designate an individual responsible for authorizing Hot Work operations in areas not specifically designed for such processes.

3. Insist that persons performing Hot Work and their supervisors are suitably trained in the safe operation of their equipment and the safe use of the process.

4. Advise all contractors about flammable materials or hazardous conditions of which they may not be aware.

B. Authorized Employees:

1. Determine if combustible materials and hazards are present or likely to be present in the work location.

2. Protect combustibles from ignition by the following:

    a. Move the work to a location free from dangerous combustibles such as B44 or B36,

    b. If the work cannot be moved, have the combustibles moved to a safe distance from the work or have the combustibles properly shielded against ignition,

    c. See that cutting and welding are so scheduled that plant operations that might expose combustibles to ignition are not started during cutting or welding.

3. Determine that fire protection (if area is equipped with sprinkler system, it is operational) and extinguishing equipment are properly located at the site.

4. Provide authorization for the Hot Work operations.

5. Require that the cutter/welder secure his approval that conditions are safe before proceeding.

6. Ensure safe handling of the cutting or welding equipment and the safe use of the cutting or welding process.

C. Safety Observers:

1. Must be properly trained (see section VII for training requirements).
2. Be aware of all sources of flammable and combustible material in the vicinity of the work
3. Stay at the work site at all times, and have all required fire-extinguishing equipment at the work site.
4. Watch for fires in all exposed areas. Sound the alarm and attempt to extinguish a fire only when within his/her capability and the capacity of the equipment available.
5. Maintain safe work conditions in the area and stop work if conditions change such that there is doubt about the safety of the work. Such as:
    a. Gases or vapors in the area,
    b. Opening of lines, vessels, pumps, etc,
    c. Fire or emergency in the area,
6. Examine the work area for a minimum of 30 minutes after the work is completed to detect and extinguish possible smoldering fires.

VI. PROCEDURES

Following are the general Hot Work (spark producing, cutting and welding) requirements/procedures and basic precautions for fire prevention and safety at the Carrollton Plant.

A. Pre-Job Inspection

1. Before Hot Work can begin, the area shall be inspected by the Authorized employees responsible for:
    a. Granting the Safe Work permit (SWP) and Hot Work/Source of Ignition form (Hot Work Permit) in the department where the work is being performed,
    b. Communicating to the Foreman to ensure awareness of any hot work before work commences and writes the Foreman name on the permit.
2. All welding, cutting and/or spark producing equipment must be checked to verify that it is in good condition before each use. This is the responsibility of the person using the equipment.

B. Safe Guards

1. A safety observer is required for all cutting/welding/grinding hot work. The HES Manager may grant exemptions, but a Safety Exception form must be completed.

2. For areas where non-cutting/welding/grinding hot work (e.g. use of battery or electric tools) the employees performing the work shall become their own safety observer. However, an independent safety observer is not required.

   The operator in the area must:

   a. Prepare the area for hot work,

   b. Complete the SWP and hot work permit and perform the initial atmospheric check of the area and document.

   c. Once the SWP permit is approved and signed off on by all parties, the operator will turn the meter over to the PMC Organometallix employees performing the work.

   d. The employees performing the hot work shall keep the monitor with them while work is being performed and will then be their own safety observer.

3. Safety observers are required for all hot work being performed by contractors. However, contractors who perform **non-cutting/welding/grinding hot work** may be their own safety observer if they are informed of the emergency procedures relevant to the area they are working (e.g. pull station locations and emergency exit routes). They must also agree to carry a combustible gas meter during their work and cease their work upon any alarms. (This information should be communicated as part of completing the required Safe Work Permit and Hot Work attachment forms).

4. To avoid unnecessary fires, all cutting or welding that can be readily moved to the two established cutting and welding areas will be moved to those areas:

   a. B44 South Maintenance Welding Shop

   b. B36 Automotive Shop.

5. If the objects cannot be readily moved, all fire hazards that can be moved will be moved a safe distance away depending on the hazard involved. If the objects cannot be moved, guards to confine the heat, sparks, and slag will be used to protect the fire hazard. Guards include: Welding curtains, heat-treated tarps and panels, wet cardboard, and covers for open sewers, drains, trenches, or other open pipes within 35' of the hot work area.

6. Combustible material can be no closer than 35 feet from the Hot Work being performed and special precautions must be taken to guard combustibles from sparks, heat, and slag.

7. Floors where combustible or flammable materials are present must be swept clean in a 35' ft. radius and kept wet or shielded. If floors are wet where welding is being performed, the welder must guard against electrical shock.

8. No Hot Work will be performed on used containers such as used barrels, drums, tanks, or other containers used to store product or waste, until they have been cleaned thoroughly as to make absolutely certain that there are no flammables or materials that could produce toxic vapors.

9. All lines connected to vessels or other equipment that could cause a health hazard or a fire hazard will be disconnected or blanked off. All containers and vessels shall be vented to permit the escape of air pressure and purged to remove the flammable or toxic gases.

10. The Safe Work permit and Hot Work/Source of Ignition form must be posted at the job site while work is being completed.

11. If the permitted activity carries over into another shift, a new permit must be issued with the same degree of inspection and control as in the preceding shift.

12. Fire extinguishing equipment shall be maintained in a state of readiness for instant use. Type and size of extinguishing equipment will depend on the nature and size of the fire hazard.

13. First aid equipment will be available at all times and injuries shall be reported as soon as possible for medical attention. Telephone locations, fire alarms and exits must be easily accessible.

14. In case of a plant emergency or change in condition, such as bad weather, hot work must cease.

15. After welding or cutting operations are complete, the welder shall mark the hot metal or provide some means of warning other workers. A fire watch or safety observer shall be maintained for at least 30 minutes after completion of cutting and welding operations.

16. Cutting and Welding on weekends, at night, and holidays requires the Plant Managapproval.

C. Atmospheric Testing

1. All areas where Hot Work will be performed must be inspected using a combustible meter.

2. All surrounding operating areas will be informed of work being done. This is to eliminate the possibility of flammables or combustibles being introduced into the sewer system while cutting and welding are being performed.

3. The employee issuing the permit will notify other appropriate departments of this permit and the importance of no flammables being in the trenches until the hot work is complete.

4. Equipment or the entire department may have to be temporarily shut down if necessary. Continual monitoring will be performed unless exempted by the HES Manager.

5. Only the initial readings for tasks that do not include cutting or welding need to be documented on the hot work form. For tasks that involve cutting and welding, readings must be documented every 30 minutes on the hot work or atmospheric testing form.

D. Designation of Areas

1. A systematic approach was used to identify areas where a hot work form will and will not be required. The following methods were used:

    a. Review of regulations, codes and standards including PSM

    b. Review of area electrical classifications

    c. Review of area risk assessment

2. Unnecessary open flames, such as candles are not allowed in any area.

3. Refer to the general plant layout drawing: Number 075000A-L-001 for identification of areas.

4. The following areas are **required** to have a safe work permit and hot work form for all hot work as defined in section IV:

B03	B05	B06	B11	B27	B29	B32	B33	B37
B38	B39	B46	B48	B50	B52	B55	B60	B73

5. All other areas including control rooms are required to have a safe work permit and hot work form **only if** cutting, welding or similar spark producing activity is being performed.

6. The B44 South Maintenance Welding Shop and the B36 Automotive Shop have been designated as cutting and welding areas and are not required to have a safe work permit, hot work and/or atmospheric testing form for any hot work being performed in those areas. The B34 maintenance shop and B47 E&I shop are also not required to have a safe work permit and hot work form for any hot work being performed in that area.

7. The B55A Maintenance shop will be required to have a hot work form and safe work permit **only if** cutting and welding is to be performed.

8. Cutting, welding and spark producing operations are prohibited:

    a. In areas not authorized by the Area Supervisor or authorized personnel,

    b. In buildings while sprinkler system is out of service,

    c. In explosive atmospheres, or explosive atmospheres that may develop inside unclean or improperly prepared tanks and equipment,

    d. In the presence of toxic atmospheres without the proper protective equipment,

    e. In storage areas of combustible materials without proper flameproof shields or covering,

    f. In areas where adequate ventilation is not present,

    g. In areas near the storage of large quantities of exposed, readily ignitable materials,

    h. In areas where ducts and conveyor systems are present that might carry sparks to distant combustibles. These ducts and conveyor systems shall be suitably protected or shut down,

    i. In areas where combustible walls, partitions, ceilings or a roof is of combustible construction,

    j. On noncombustible walls such as a metal wall, partition, ceiling or roof unless proper precautions are taken to prevent ignition of combustibles on the other side due to conduction or radiation,

    k. On metal partitions, walls, ceilings or roofs having a combustible covering, nor on walls or partitions of combustible sandwich-type panel construction,

    l. On pipes or other metal in contact with combustible walls, partitions, ceilings or roofs if the work is close enough to cause ignition by conduction.

E. Welding

1. When welding in confined spaces and the welding is suspended for any substantial period of time, such as lunch or overnight:

    a. All electrodes will be removed from the holders and the machine disconnected from its power source and/or engines turned off,

    b. Cutting torch valves will be turned off and torches and hoses will be removed from the confined space. This is to avoid gas escaping through leaks or improperly closed valves.

2. Welders shall position welding machines and other equipment (cables, air lines, electrical cords) so that they do not create hazardous conditions at passageways, ladders, stairways, and fire lanes.

F. Specifications for Welding Protectors

1. Helmets and hand shields shall be made of a material, which is an insulator for heat and electricity. Helmets, shields and goggles shall be not readily flammable and shall be capable of withstanding sterilization and shall be arranged to protect the face, neck and ears from direct radiant energy from the arc.

2. Helmets shall be provided with filter plates and cover plates designed for easy removal.

3. All parts of helmets shall be constructed of a material, which will not readily corrode or discolor the skin.

4. Goggles shall be ventilated to prevent fogging of the lenses as much as practicable.

5. All glass for lenses shall be tempered, substantially free from scratches, air bubbles, waves and other flaws.

    a. Lenses shall bear some permanent distinctive marking by which the source and shade may be readily identified,

    b. All filter lenses and plates shall meet the test for transmission of radiant energy prescribed in ANSI Z87.1-1968-American National Standard Practice for Occupational and Educational Eye and Face Protection.

    c. Except when a lens is ground to provide proper optical correction for defective vision, the front and rear surfaces of lenses and windows shall be smooth and parallel.

6. Whenever work permits, the welding area should be enclosed to prevent unnecessary exposure of welding rays. Low reflectivity and noncombustible or flameproof screens, curtains, or shields may be used. Workers working adjacent to welding area shall be protected from the rays by noncombustible or flameproof screens or shields or shall be required to wear appropriate goggles.

7. To guard against burns and welding rays, the welder or cutter will wear long sleeve shirts, leather welding gloves, skullcaps, steel toe boots, and in some operations a leather coat may be required.

8. All welding hoods used during welding operations shall be capable of protecting the face, neck, and ears from direct radiant energy from the arc.

9. Welding may produce fumes and gases hazardous to health. Avoid breathing these fumes and gases. Mechanical ventilation shall be provided when welding or cutting is being done. Local exhaust fans or general ventilation systems must be provided and arranged to keep the amount of toxic fumes, gases, or dust below the maximum allowable concentration.

10. When welding in confined spaces, all requirements under the confined space policy apply.

11. Consult MSDS information and/or precautionary labels accompanying welding materials. All welding materials must have precautionary labels. A number of these materials are potentially hazardous and special precautions must be taken. Such materials may include cadmium, fluorine compounds, zinc, lead, beryllium, mercury, cleaning compounds and degreasing agents, and stainless steel.

G. Contractor Requirements

1. All contractors must be informed of the requirements of this standard and the potential fire or explosion hazards related to their work at the PMC Organometallix Inc. facility.

2. All contractors' employees must have received training in hot work hazards and procedures before engaging in hot work activity at PMC Organometallix Inc. facilities.

3. Contractors shall follow all precautions outlined in this standard, including permitting.

VII. TRAINING

1. All employees shall be trained on Hot Work procedures and policy as identified in the site training matrix. Contractors are required to provide documentation that their employees are trained on burning and welding procedures.

2. Annual refresher training for Hot Work shall be conducted and documented.

3. Safety Observers Training requirements:

a. How to use a fire extinguisher, including extinguishing a fire within the capacity of the available equipment, and sounding the alarm

b. Be able to identify sources of flammable and combustible material in the vicinity of work,

c. Stopping hot work in case of a plant emergency such as gases, vapors, or fire in the area and,

d. Line or equipment opening.

VIII. AUDIT

1. Permits and forms will be kept for one year.

2. An audit of the Safe Work permit system will be conducted and will include the Hot Work/Sources of Ignition form and Atmospheric Testing form. The audit will be conducted on a monthly basis and forward to management on a quarterly basis by the HES department.

3. Audit reports will be kept for three years.

1.0 Purpose: This procedure describes the Carrollton Plant site security and control policies and procedures, and also the plant's response to security threats and advisories, whether issued by the Department of Homeland Security (DHS) or locally, and security emergencies.

2.0 Scope: This procedure applies to the Carrollton Plant, contractors and anyone working or visiting within the boundaries of the plant.

3.0 Responsibilities

Plant Manager

The Plant Manager is responsible for the security of the facility and ensuring that personnel carry out their respective responsibilities under this procedure.

HES Manager

The HES Manager is responsible for ensuring the administration of this procedure and related training, and that assistance in the implementation with the provisions of this procedure are available.

Department Managers and Supervisors

Department Managers and Area Supervisors are responsible for ensuring that the provisions of this procedure are carried out and/or followed within their area(s) of responsibility.

Employees, Contractors and Their Employees

Employees, Contractors and their Employees are responsible for adhering to the security practices contained in this procedure, and adhering to any directions given by security personnel, plant management staff, or the Incident Commander (IC). All employees and contractors are responsible for reporting security concerns to a supervisor (for employees) and area operator or plant contact (for contractors), or via the 208 emergency phone number.

4.0 Procedure

The following procedures are to be followed by all personnel at the Carrollton Plant within the scope of this document.

4.1 Normal Operations

The following security polices and practices are in effect during normal plant operations.

4.1.1 Access Controls

Access control features are as follows:

- An eight-foot chain link fence surrounds the plant perimeter with barbed and ribbon wire attached to the top. Concrete barriers are placed along the north and west fence line.

- Access to the site is restricted to the following areas:
  1) North Perimeter:
     a) One-man gate, main entrance gates, and 3 automatic turnstile gates at the Security Station.
     b) One exit gate leading to wastewater treatment facilities access road
  2) East Perimeter:
     a) One gate onto M&T Road, one gate at removed railroad track, and one gate east of Maintenance Shop.
  3) South Perimeter:
     a) One railroad entrance gate and one exit gate leading onto the Carrollton Railroad right-of-way
  4) West Perimeter:
     a) One gate at the southwest corner of the perimeter fence, west of B67 (WWT)
     b) One gate at the northwest corner of the site, near the B10 loading area

- As appropriate, the unmanned gates (all except the north gate) remain closed and locked when not in use and are equipped with concrete barricades that may be moved by a lift truck in an emergency.

- Perimeter fencing includes signage indicating, "Property of PMC Organometallix, Inc. – NO TRESPASSING".

- Where practical, perimeters are kept clear of brush and debris within 25 feet of the fence.

- Lighting is available around the perimeter of the plant, in the operational areas, and at the security gates.

4.1.2 Security Personnel

Security personnel are on-duty at the B07 Security Station (Guard House) located near the main gate Mondays through Fridays, from 6:00am through 4:30pm. When conditions warrant, the Guard House may be manned during evening shifts and weekends. During any time that the Guard House is unattended, the north man gate and the north main gate will be locked.

4.1.3 Background Checks

Background checks are conducted for both potential PMC employees and contractors.

- The Human Resources department uses a 3rd party service to complete reference and criminal background checks for all potential PMC employees.

- Potential contractors must verify that each of their employees that may work at the Carrollton plant have an I9 Form on file, and has had a background check with no criminal record.

4.1.4 Badge Access for Employees

Unless receiving prior approval from the Plant Manager or HES Manager, all individuals (i.e., location employees, visitors, contractor personnel, etc.) must enter and leave via the main gate on the north side of the plant.

All employees are issued a badge photo I.D. for entrance into the plant. Employees will enter the facility by using their employee badge, and it must be available for display once inside the plant. If an employee has forgotten or lost their badge, they must sign-in with the Security representative at the Guard House for access to the plant.

Permanent contractors are also issued a badge photo I.D. However, with the exception of the janitorial contractors (who enter the facility during evening or weekend hours), contractor badges do not open the turnstile gates.

4.1.5 Contractors and Visitors

All individuals not permanently assigned to the PMC Organometallix Carrollton plant must have a designated plant contact present at time of entry. Plant contacts are responsible for the conduct and safety of those assigned to them.

All persons who check in through the Security Station will be required to give a company or government-issued photo I.D., and sign a Visitor or Contractor Log. If their company name has been verified from a list of approved contractors, a visitor badge will be given. A copy of the I.D. will be made and kept on file at the Security Station. All visitors unknown to the security guard must be escorted. For known visitors, the guard may call the plant contact and allow the visitors to walk (or drive, if approved) along the main road towards the B26 office building.

All firms making deliveries or accepting materials for transport must enter and leave via the main gate (by Security Station). The only exceptions are CSX railroad employees delivering chemicals by rail car. These individuals check in through the railroad gate and log their name in the logbook located in that area.

All freight haulers arriving at the Security Station are verified against the shipping and/or receiving schedules, and are verified by company name, product, and/or purchase order. In the event that an unexpected freight hauler arrives at the plant, security may attempt to contact the shipping or receiving department to verify the transaction, but drivers will be denied entry if their expected transaction can not be verified.

For firms making deliveries or accepting materials for transport, a plant representative must escort at all times any drivers who are delivering bulk chemical products. However, truck drivers destined for pick-ups and deliveries to warehouses and storerooms do not require a continuous escort. However, the destination must be contacted and informed that a driver has been dispatched to his or her location. The Security Station is to be notified of any unusual delays of the pick-up/delivery truck arrival at the in plant destination.

4.1.6 Front Office (Administration) Building (B1)

Any employees entering the front office building (B1) must badge in. All visitors who are remaining in the front office do not have to surrender an I.D. but must sign in at the reception desk.

4.1.7 Vehicle Controls

Vehicle control features are as follows:

- The use of personal vehicles within the plant is not allowed. Personal vehicles are to be parked outside the plant fence line, within the employee parking area, unless permission has been granted by the Plant Manager.
- Plant visitors and contractors may have only one vehicle per company (unless approved by their plant contact).
- All vehicles entering and leaving the plant are subject to searches for non-permissible items and/or company owned property.
- The movement of vehicles within the plant is restricted to designated routes and locations. Because of the increased dangers associated with vehicles equipped with catalytic converters, these vehicles are restricted to the specific areas indicated on the Catalytic Converter map in the Appendices.
- The plant-wide speed limit is 10 mph.

4.1.8 Property Inspection and Surveillance

Physical inspections of the perimeter of the facility take a place on a monthly basis and are performed by the Emergency Response Coordinator or their designee. These physical inspections are completed to ensure that the access control features at the site remain in-place.

The facility property is also equipment with surveillance cameras in the following areas:

- Five cameras are directed towards the B22/B55 operations,
- Six cameras are directed towards bulk loading and unloading operations at B17 and B10, and
- One camera is directed towards the front gate and another camera is directed at the railroad gate.

Designated employees (Security or Operations Personnel) will periodically view the surveillance cameras during their shift.

The following are examples of conditions that would alert the Security officer or designated employee to notify the foreperson or backup IC:

- Any suspicious activity on plant property
- Unfamiliar automobiles parked in undesignated parking areas
- Trespassers
- Other conditions listed in Appendix Y of the Emergency Action Plan

4.1.9 Enroute Security

Corporate or plant resources (as specified below) will prioritize and periodically analyze potential security threats associated with the transportation of materials following methods consistent with American Chemistry Council (ACC) Responsible Care guidelines and Department of Transportation (DOT) / Department of Homeland Security (DHS) regulations. This includes the following:

1. Coordinating general security awareness training for DOT hazardous materials employees (Plant HES and Corporate Regulatory Manager).

2. Coordinating and conducting a transportation security risk assessment, and implementing applicable security measures (Plant HES).

3. Conducting logistics related service provider evaluations that include security aspects (Corporate Logistics).

4. Providing communication, dialogue, and information exchange on appropriate security issues (Plant HES).

5. Implementing evaluation, response, investigation, reporting, communication and corrective actions for security incidents as they apply to logistics activities (Logistics Department and/or Plant HES).

6. Monitoring regulatory and/or company policy changes as they relate to security within the value chain (Plant HES and Corporate Regulatory Manager).

4.1.10 Container Inspection and Security

The following list describes the warehouse receiving and shipping process and applies to ocean containers of material either received or shipped from the Carrollton plant. The following instructions are to be followed:

1. It is the responsibility of the Senior Area Scheduler to ensure this procedure is fully implemented and followed.

2. Before unloading any containers the seal will be checked by the receiving dept. to insure its integrity. The seal number will be

checked against the number noted on the bill of lading and/or the commercial invoice.

3. If a seal arrives broken, or the seal numbers do not match, the Senior Area Scheduler will be contacted by the receiving department before the material is unloaded. (Resolution will be achieved by contacting the purchasing dept)

4. Before any container is loaded the Container Inspection Form (CONTAINERINSP) will be filled out for each shipment.

5. If there is a problem with the inspection listed on Container Inspection Form (CONTAINERINSP) the senior Area Scheduler will be contacted by the shipping dept. (resolution will be achieved by contacting the container line)

6. Seals will be attached to each container by the Carrollton shipping department before the container leaves the plant.

7. Seals will meet or exceed PAS ISO 17712 standards for high security seals.

4.2 National, Regional or Local Security Threat or Advisory Conditions

The National Terrorism Advisory System (NTAS) has replaced the former color-coded Homeland Security Advisory System (HSAS). This new system is intended to more effectively communicate information about terrorist threats by providing timely, detailed information to the public, government agencies, first responders, airports and other transportation hubs, and the private sector.

When credible security information is available, the Secretary of Homeland Security will decide in coordination with other Federal entities whether an NTAS Alert should be issued. These alerts will include a statement that there is an elevated threat or an imminent threat. Using available information, the alerts would provide a summary of the potential threat, information about actions being taken to ensure public safety, and recommended steps that can be taken to help prevent, mitigate or respond to the threat. An individual threat alert would be issued for a specific time period and then automatically expire. It may be extended or cancelled if new information becomes available or the threat evolves or fades.

4.2.1 DHS Elevated Threat Alerts

In the event that an Elevated Threat Alert has been issued by DHS, the HES Manager and/or Emergency Response Coordinator will notify the Plant Manager. The Plant Manager or their designee will notify managers and supervisors of this change in status.

Additional responsibilities are as follows:

- Managers and supervisors will communicate the change in status to their employees. This communication would cover mail-handling procedures (Site

Safety Manual Section 42), the Crisis Manual and any other security related emergency response plans.

- The Emergency Response Coordinator will:
  - Meet with HES Manager, Operations Manager or their designee to arrange for:
    - continuous security coverage,
    - property rounds once an hour and
    - procedure reviews by supervisors.
  - Check and secure all buildings, rooms, storage areas, etc. inside the plant fence line that are not used on a regular basis.
  - Check railcars, trailers and container trucks for damage or unusual activity

- The foreperson or their designee will inspect the perimeter of the property and report any damage **once per hour** (at a minimum). Perimeter inspections would include:
  - Ensure that all access points except the main gate and the railroad are closed and locked
  - Check the fence for conditions that include but are not limited to:
    1) Holes in the fence or holes dug under the fence
    2) Loose ribbon wire
    3) Damaged fencing

- The designated security officer on duty will ensure that the surveillance cameras are being monitored **at all times**

- As appropriate, the HES Manager and the Plant Manager will notify other PMC facilities in the United States to inform them that an elevated threat is in effect.

4.2.2 DHS Imminent Threat Alerts

In the event that an Imminent Threat has been issued by the DHS, the same communication and responsibilities will apply as during an Elevated Threat. However, the following additional actions are to be taken:

- Management is to activate the Crisis Communication procedure.

- Non-essential personnel functions/staffing and shelter-in-place will be evaluated by Management on a need-by-need basis. Information to determine the need will be collected by contacting the local police department and monitoring local and national news channels.

- An incident command structure will be established.

- Security patrols will be enhanced to include roving checks of rail cars, trailers and container trucks.

4.3 Security Emergencies

Trespassing or other security emergencies on company property may be designed to impede normal operations and employee access to the facility. These events may occur in conjunction with an issued security threat or advisory, or may occur independently of a threat or advisory. In the event any security emergency, all personnel on-site (include contractors and visitors) must adhere to any and all directions given by security personnel, management staff, or by the Incident Commander (IC). Also in the event of an emergency, the protection of all resources (personnel and property) is of the utmost concern. As such, it is expected that coordination with local law enforcement and other regulatory agencies will be required. All personnel must also adhere to any directions given by local law enforcement.

4.3.1 Reporting a Suspicious Phone Call or Activity

Any employees that receive a bomb threat, suspicious request concerning any PMC product, or any other type of suspicious phone call must take the following steps:

- Do not give out any company information
- Note all information possible concerning the nature of the call (name, number, company)
- For a bomb threat, complete the Bomb Threat Checklist (Appendix W of the Emergency Action Plan)
- Report the call to the foreperson or IC immediately after the call is over.

Similarly, any employee that observes suspicious behavior as listed in Appendix Y of the Emergency Action Plan must also report that behavior to the foreperson or IC.

4.3.2 Responding to a Report of Suspicious Activity or a Security Emergency

Upon receiving a report of a suspicious activity or phone call, the foreperson or IC is to notify the Plant Manager, HES Manager and Operations Manager.

If the event is determined to be a security breach or other true security emergency, the Foreperson or IC is to contact the Carrollton Police Department by radio or cell phone immediately.

The following steps are to be taken by the Foreperson depending on the severity of the breach.

4.3.2.1 For a Non-Threatening Security Breach

- Stop the intruder (ask who they are, what they are doing, etc.)
- Escort the intruder to the front gate
- Hold until the authorities arrive

4.3.2.2 For a Threatening Security Breach

If the situation is an immediate threat or escalates to a threaten situation, the Foreperson is to communicate the area of disturbance to the IC or backup IC. The IC or backup IC will make a general announcement to the plant using the phrase "Code Red" or "Code Yellow" and the location that the disturbance (ex. Code Red B22). **These codes are to be used exclusively for security emergencies.**

When a **"Code Red"** is used, all personnel are to evacuate the plant following plant evacuation procedures (Emergency Action Plan Section 14), avoiding the area surrounding the threat. Subsequent to the evacuation, a "muster report" will be run and "head count" will be taken to identify and count the individuals who have exited the plant.

When a is used, employees are to:

- Shelter in place (take immediate shelter in your area, unless directed to another location by the foreperson or IC).
- Barricade the doors with any heavy objects that can be placed in the doorway.
- Stay away from windows and doors

During security emergencies all vehicle movement into, out of, or within the plant will cease. The main roadway and gates are to be kept clear to facilitate entry of any assisting outside agencies. Upon arrival, responding outside agencies will need to be with provided a guide to direct them to the point of need.

Once the situation is under control the all clear alarm will be sounded.

5.0 Security Program Maintenance

The following procedures are in effect to ensure the sustainability of the Security to be followed by all personnel at the Carrollton Plant within the scope of this document.

5.1 Self-Assessment

Pursuant to DHS requirements, the Carrollton plant will perform a security program self-assessment annually. The Emergency Response Coordinator will use the DHS Site Security Plan (SSP) audit checklist during the site self-assessment.

Recommendations from the self-assessment will be addressed. A documented action plan with responsibilities and due dates shall be implemented and appropriate follow-up shall be planned to assess completion and effectiveness.

5.2 Management of Change

Security considerations will take place in new or renovated construction or equipment installations. This may be accomplished through process hazard analyses, management of change, or any other safety review.

5.3 Training

All employees and permanent contractors receive training on security procedures, including their respective roles and responsibilities. Training records are maintained in Training Mine.

6.0 Cyber Security

The plant network server is located in the Administration Building. The server room is locked at all times and access is limited to IS&T personnel only. Back-up tapes are stored off-site. In addition, the policies outlined in the "Access & Use of Electronic Data & Electronic Data & Communications System Policy Overview" section of the Carrollton Plant Handbook are to be followed.

Attachment 2-2
Example Job Safety Analysis

JOB SAFETY ANALYSIS

Date/Time: _____ **Weather:** _____

JSA prepared by: _____ **Job Location:** _____

Site Supervisor: _____ **Site Name:** _____

1. Are there other work activities being conducted in the area: _____

If yes, what type of work: _____

2. List all of the required PPE: _____

_____

_____

3. Describe the scope of work being performed: _____

_____

_____

4. Describe all Potential Hazards: _____

_____

_____

5. Describe ways to minimize exposure to the hazard:

_____

_____

Personnel on site		
Print Name	**Sign Below**	**Date**

Safe Meeting Location

Safe Meeting Point: _____

Evacuation Route: _____

ATTACHMENT 3-1

PHYSICAL HAZARD ANALYSIS

The following are potential hazards that may be encountered at the site during the work and the appropriate procedure for each.

SEVERE WEATHER

If severe weather occurs that may affect the safety of site workers, the Site Safety Officer or designee will stop affected field operations. The Site Safety Officer or designee will give the approval to resume operations when weather conditions improve.

Work will be suspended during any weather conditions that are sufficiently extreme to potentially affect the adequacy of the Health and Safety Plan or the integrity of equipment, such as heavy rains, heavy snow fall, electrical storms, or extreme heat or cold. The Site Safety Officer is responsible for determining when to suspend work.

HEAT STRESS

Field personnel will be cognizant of weather conditions and monitor weather reports so that they can dress appropriately. Field personnel should bring supplies of non-caffeinated fluids such as water to the job site daily.

During hot weather, workers will monitor each other's actions, speech, and appearance for signs and symptoms of heat-related illnesses including heat exhaustion and heat stroke. Physical signs and symptoms of heat exhaustion include headache, nausea, vertigo, weakness, thirst, and giddiness. Heat exhaustion may progress to heat stroke if a worker is unable to cool and re-hydrate their body. Heat stroke is a medical emergency that requires immediate medical attention. The primary signs and symptoms of heat stroke are confusion, irrational behavior, loss of consciousness, convulsions, lack of sweating (usually), hot, dry skin, and an abnormally high body temperature. Workers should be aware of the key differences between the signs and symptoms of heat stroke and those of heat exhaustion, such as the lack of sweating, the color of the skin (red), and the rise in body temperature.

COLD STRESS

Factors affecting the potential development of cold weather related symptoms include ambient air temperature, wind speed, ambient humidity, perspiration, contact with

surface water or metal, clothing, age, and general health conditions. High humidity conditions and cold temperatures also have the effect of rapidly removing heat from the body.

Cold temperature clothing will be provided to personnel required to work in temperatures below 40°F. This clothing may include insulated coveralls, gloves, boots, wind breakers, and hard hat liners. Outer and inner garments will be selected that allows perspiration to be drawn away from the skin.

Work rate should not be so high as to cause heavy sweating when the wind chill index falls below 10°F. If heavy work must be done, arrangements should be made to provide a heated warming shelter for rest periods. Work should also be arranged to minimize sitting or standing still for long periods of time.

Hypothermia is a general term describing the lowering (cooling) of the body core temperature. Initially, blood flow is restricted to the skin, hands, and feet and conserved for the body core and brain. Stages of hypothermia include shivering (a response that generates heat), apathy, decreased muscle function, decreased level of consciousness, a glassy stare, possible freezing of the extremities, and decreased vital signs with slow pulse and slow respiration rate.

Severe hypothermia results in a rapid decline in the body core temperature and is an acute emergency requiring immediate medical attention. Keep the patient as warm and dry as possible until professional medical attention is available.

Frostbite is the effect of freezing a body part such as the ears, cheeks, nose, fingers, or toes. Symptoms are first noticed as local tingling and redness, followed by paleness and numbness. Initial stages are described as frostnip or incipient frostbite, and characterized by sudden blanching or a whitening of the skin. Superficial frostbite is where the skin has a waxy or white appearance and is firm to the touch, but the tissue beneath is resilient. Deep frostbite, is where the tissues are cold, pale, and solid; this is an extremely serious condition that requires immediate medical attention.

First Aid Treatment of frostbite is to gradually warm up the affected body part. If numbness and/or pain does not subside and if deep frostbite is evident, medical attention should be obtained as soon as possible.

Prevention of frostbite can be accomplished through the replacement of wet clothing with dry clothing, drinking of warm fluids at locations away from the work zones, and frequent warm-up breaks.

SLIP, TRIP AND FALL HAZARDS

As in any work area, it is expected that the ground may be uneven, the surface may be uneven, debris may be present, work may be performed on poly sheeting, and wet or muddy areas may exist. Therefore, the potential for slipping, tripping and falling is present. Severe slip or trip hazards will be identified prior to commencement of project activities and demarcated by flags or caution tape.

TRAFFIC AND SITE ACTIVITIES

Portions of the site remain active resulting in truck traffic and the use of heavy equipment. Work may take place along site access roads. If required, the area will be cordoned off with traffic cones or caution tape to prevent traffic from accessing the work zone.

Field personnel should be constantly aware of their surroundings and follow the guidelines below:

- Wear appropriate protective equipment even outside of contaminated areas (e.g., hard hat, safety glasses, safety boots).
- Keep a safe distance from heavy equipment operations and truck traffic, and preferably within the line of site of the operator.
- Be aware of equipment backup alarms.
- Be alert to overhead hazards.
- If working around heavy equipment or operations be alert to noise levels and check with the SSO if noise levels do not permit normal verbal communication. A hearing protection program is not anticipated, but will be implemented if necessary.
- If working above grade observe all fall protection requirements and devices.

EQUIPMENT

Work will involve the use of equipment such as heavy equipment, generators, and pumps. The following activities should be followed to minimize hazards associated with operating equipment:

- Approved ear muffs and ear plugs will be used to reduce noise levels below the OSHA action level of 85 dBA. If you have difficulty in maintaining normal conversation levels, the site noise level likely exceeds the safe OSHA limit, and

hearing protection must be worn. These situations could include, but are not limited to, equipment operations, hand tool use, and pumping activities.

- Prior to beginning any subsurface work, effort shall be made to determine whether underground installation (i.e., sewer, telephone, water, fuel electric lines, etc.), will be encountered and the estimated location. When the subsurface work approaches the estimated location of such installation, the exact location shall be determined and when it is uncovered, proper supports shall be provided for the existing installation. Utility companies shall be contacted and advised of proposed work prior to the start of actual excavation.
- Be aware of moving parts on the equipment.
- Be alert to any overhead hazards and utilities.
- Ground fault interrupters will be used when electric pumps or other equipment powered by electricity are operated in or around wet conditions.
- Appropriate eye protection will be worn to prevent splashing into the eyes. At a minimum, safety glasses with side shields are required. If there is a high potential for liquid splashes, full face shields must be worn.
- Gloves and other PPE should be worn, as specified in Section 5.
- Back strain can be prevented by employing proper lifting techniques (i.e., lifting with legs), and utilizing moving equipment and/or assistance from others when possible.

ENVIRONMENTAL

Certain areas where work may occur may be overgrown with vegetation. Among others, poison ivy and ticks may be present throughout the site. Proper steps shall be taken to prevent environmental injuries while on site.

- If working in or near overgrown vegetation, apply insect repellant prior to starting work. Reapply throughout the day as necessary.
- Wear long sleeves and high socks.
- Remove any excess brush or debris from the work site prior to initiating work.

ATTACHMENT 7-1

ENVIRONMENTAL MONITORING

Air monitoring and engineering control program has been developed to control potential exposure to organic vapors and dust and monitor the worker breathing zone whenever exposure to hazardous vapors or dust may occur. This air monitoring program was designed to be consistent with known or potential exposure to the hazardous substances listed in Table 4-1 and the properties of those substances.

In order to monitor and control potential exposure to hazardous organic vapors or dust, a procedure has been developed that will be implemented when potential exposure is possible. Prior sampling data was reviewed to determine the appropriate level of air monitoring required. In addition to use of a MiniRAE 2000 Photoionization Detector (PID (or equivalent), Draeger tubes, or similar will be used to detect for benzene due to its low PEL. A personal data RAM will be used to monitor concentrations of airborne dust.

Air monitoring will be initiated upon mobilizing. Prior to activities for which exposure is possible, background readings will be taken with the PID and data RAM and recorded. The following procedures and action levels will be utilized while activities that disturb the soil are being performed or while activities involving the perched water collection system are being performed.

MONITORING FOR VOLATILE ORGANICS WITH PID AND DRAEGER TUBE

Following completion of the background readings, the work area exposure activities may begin (e.g., soil /cap disturbance/handing of perched water). Organic vapor readings via PID or similar will then be taken in the breathing zone within the work area and compared to background. If the PID results are consistent with background, then the work may proceed. In areas where benzene is a potential contaminant, if PID measurements are detected above background in the breathing zone, then a Draeger tube measurement will be collected for benzene in the breathing zone adjacent to the work. Provided PID readings remain less than 10 ppm and Draeger tube(s) do not indicate the presence of benzene above 1ppm, the work may continue. Should the PID measure sustained readings above 10 ppm, or Draeger tubes detect the presence of benzene above 1 ppm in the breathing zone, then work will not be initiated until a ventilation fan can be brought to the location, or a decision is made by the SSO/PLANT HES to go directly to Level C respiratory protection (FF APR with OV cartridge). Short-term work activities (less than 15 minutes) may continue at Level D if PID readings remain below 10 ppm and Draeger tubes indicate the presence of benzene less

than 5 ppm. If a ventilation fan is brought in, the air monitoring procedure will then be repeated with a ventilation fan blowing across the work zone away from workers.

Level C respiratory protection (FF APR with OV cartridge) will remain in use when air monitoring indicates benzene concentrations (from Draeger tubes) greater than 1 ppm or PID readings consistently range between 10 and 25 ppm above background in the breathing zone.

Work will stop when benzene concentrations (from Draeger tubes) exceed 50 ppm.

CONTINUED VOLATILE ORGANICS MONITORING AND RESPIRATOR USE

Respiratory requirements established for the breathing zone will be required throughout the Exclusion Zone. Use of a second PID downwind of the work area is not anticipated. Traffic cones will be used to mark out the Exclusion Zone.

If Level C respiratory protection is required, activities will be conducted under the direction of the SSO/PLANT HES. A ventilation fan may be utilized if necessary to maintain PID readings below 25 ppm in the breathing zone, and PID and, if necessary, Draeger tube measurements will continue to be collected to monitor the level of respiratory protection required. Decisions to reduce the level of respiratory protection will be made by the SSO/PLANT HES. Employees who may be required to use a respirator will follow the appropriate Respirator Protection Program requirements and OSHA 29 CFR 1910.134, and will have been fit tested within the past 12 months. Should Level C respiratory protection be required for volatile organics, cartridges will be changed out prior to the start of a new shift.

MONITORING FOR DUST RAM

During intrusive or other activities that generate dust (e.g. demolition of concrete/pavement) data RAM readings will then be taken in the breathing zone within the work area and compared to background. If the data RAM results are consistent with background, then the work may proceed. If monitoring results exceed 15 mg/m^3 total dust or 5 mg/m^3 respiratory fraction, dust suppression must be applied before work can continue. Dust suppression methods will be determined by the Project Manager, in coordination with the SSO/PLANT HES, Project Health and Safety Coordinator and Site Representative. Dust suppression methods may include application of water or reduction in the ground disturbance footprint. If the total dust readings are unable to be reduced below the threshold, work must stop until levels decrease.

ATTACHMENT 12-1

DECONTAMINATION/CLEAN-UP PROCEDURES

Personnel and equipment that have been exposed to potentially impacted soil or other impacted material shall be decontaminated according to the following procedures.

PERSONNEL DECONTAMINATION

Appropriate decontamination equipment will be available to personnel to properly decontaminate outer PPE. Disposable PPE will be removed on site and collected for proper disposal in designated receptacles. Reusable PPE will be removed on-site and decontaminated prior to leaving the site.

Portable wash-up materials, apparatus and/or facility may be provided. Personnel working at the site must wash their hands and face prior to eating, drinking or smoking and practice good personal hygiene. Potable water will be available at the site. Personal decontamination should be done at the designated decontamination location.

EQUIPMENT DECONTAMINATION

Equipment decontamination will take place at the location specified by the Site Representative (as needed).

Instruments will be decontaminated whenever they have come into contact with impacted soil or perched water. Dust or dirt will be removed daily or more frequently as needed. Instrument decontamination will occur in the same area for personnel decontamination and will consist of the removal of liquids or dust from the surface of the instruments.

DECONTAMINATION PROCEDURES

In general, a plastic tarp will be placed on the ground in the designated decontamination area, with a container placed adjacent to the area for liquid decontamination fluids. Two tubs will be utilized for cleaning and rinsing of contaminated equipment or reusable PPE. The tub used for cleaning will contain water mixed with any commercially available low phosphate cleaning agent such as Alconox. The rinsing tub will contain tap water. Spent wash and rinse water will be collected and if appropriate and permitted discharged to the facility wastewater system.

If field decontamination of soil sampling equipment (that may directly contact sample) is necessary, the following procedure will be utilized:

- Laboratory grade glassware detergent plus tap water wash,
- Generous tap water rinse,
- Distilled and deionized (ASTM Type II) water rinse

ATTACHMENT 13-1

Incident Report and Statement of Injury

What happened? Discuss HOW and WHY the accident happened:

Has anything like this ever happened to you before? If yes, when?

Were there damages to any equipment or property? If yes, explain.

Was anyone injured? If an employee was injured, have a Supervisor complete the Supervisor's Accident investigation Report.

Were there any witnesses? If yes, who?

What, if anything, can be done to prevent a recurrence?

Employee's Name: _____

Title: _____

Supervisor's Name: _____

Date of Occurrence: _____

Attachment 14-1

Google Maps

PMC Organometallix to Carroll County Memorial Hospital

Drive 1.6 miles, 5 min

Imagery ©2017 Google, Map data ©2017 Google 1000 ft

PMC Organometallix

2316 Highland Ave, Carrollton, KY 41008

1. Head northwest toward Highland Ave — 0.2 mi
2. Turn left onto Highland Ave — 1.3 mi
3. Turn left onto 11th St
   Destination will be on the left — 0.1 mi

Carroll County Memorial Hospital

309 11th St, Carrollton, KY 41008

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Attachment 14-2

Google Maps

PMC Organometallix to 750 Clay St, Carrollton, KY 41008

Drive 2.1 miles, 7 min

Directions to Carrollton Police Station

PMC Organometallix

2316 Highland Ave, Carrollton, KY 41008

1. Head northwest toward Highland Ave — 0.2 mi
2. Turn left onto Highland Ave — 1.3 mi
3. Turn left onto 11th St — 0.3 mi
4. Turn right onto Clay St — 0.3 mi

750 Clay St

Carrollton, KY 41008

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Rev. 1, 3/2/18
Project 170027

ATTACHMENT C
MATERIAL MANAGEMENT PLAN

cornerstone
A TETRA TECH COMPANY

Building lifetime relationships with our clients and employees.

Material Management Plan

PMC Organometallix
(Formerly Arkema)
Carrollton, Kentucky Facility

March 2018 (Revision 1)

Prepared for:
Arkema Inc.
900 First Ave.
King of Prussia, PA. 19406

1006 Crystal Run Road, Suite 101
Middletown, NY 10941
(845) 695-9206

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1 INTRODUCTION AND OBJECTIVE

This document presents the Material Management Plan (MMP Plan) for the PMC Organometallix Inc. (PMC), Carrollton Kentucky facility (U.S. Environmental Protection Agency (EPA) ID # KYD006373922, AI # 690). This facility was formerly owned and operated by Arkema Inc. This MMP Plan is provided as part of the Corrective Measures Implementation Plan prepared under the Resource Conservation and Recovery Act (RCRA) Corrective Action Program. This work is completed under the requirements of the facility Hazardous Waste Management Permit (the RCRA Permit) issued by the Kentucky Department for Environmental Protection (KDEP), Division of Waste Management (KDWM). As part of the Corrective Action Program, the facility has been investigated and corrective measures have been implemented for identified environmentally impacted areas or Corrective Action Areas. Corrective measures consist of surface caps and a perched water collection system.

The procedures and protocols in the MMP will be followed to manage the handling and movement of material generated during intrusive activities conducted within the Corrective Action Areas (i.e., areas of constructed engineering controls or caps).

Locations of engineering controls are shown on Figure 1-1, and are generally located in the following areas of the facility:

- SWMU 22 – Former Tank Farm Area
- B-3 Hot Spot (part of SWMU 69)
- Perched Water Area (AOC P)
- North Side TRS Concrete Pad Area (AOC Q)

Figures 1-2 through 1-4 depict the specific engineering controls located in the above areas. Figures 1-5 through 1-8 provide construction details of the various cap types found onsite and details on restoration requirements in the event areas of caps require replacement.

Soils and perched water found below engineering controls shown on Figure 1-1 are assumed to be impacted materials and shall be handled in accordance with this MMP.

2 MANAGEMENT OF EXCAVATION ACTIVITIES IN AREAS OF IMPACTED SOILS

2.1 General Requirements

Plant procedures for excavation and intrusive work are to be followed. A work permit is required from the HES department prior to conducting intrusive work onsite. The PMC HES department will determine if intrusive activities will occur within cap areas and if Corrective Action Areas are to be impacted and will oversee implementation of this MMP.

Excavation activities within areas of engineering controls will be completed under a Health and Safety Plan (HASP) that conforms to requirements under 29 CFR 1910.120, and 29 CFR 1926. A HASP is attached to the Site Management Plan (SMP) for reference. The Facility and each contractor will be required to develop, implement and update (as needed) a HASP specific to the job requirements.

2.2 Excavation Area Demarcation

Areas around excavations that may encounter impacted soils or perched water will be demarcated by caution tape or temporary fencing or other barriers as necessary to keep persons that are not involved in the project and not trained in the requirements of this MMP away from exposed areas.

2.3 Excavation

Excavation areas will be maintained only as large as necessary within areas of engineering controls.

Excavations will be performed in accordance with applicable OSHA requirements. Excavation protection system(s) required by ordinances, codes, law and regulations will be provided to prevent injury to workmen and to prevent damage to new and existing structures or pipelines. Confined space entry procedures will be followed if required.

Excavated impacted soils will be either loaded directly into containers or trucks for off-Site disposal or placed in a designated area pending off-Site disposal. Containerized material for off-Site disposal will be properly stored until transported. Should it be necessary to temporarily stockpile excavated impacted soil (while awaiting receipt of waste characterization results for instance), the excavated soil will be placed in containers or controlled (e.g., lined and covered) stockpiles. Stockpiles should be protected and if necessary soil erosion and sediment controls implemented.

Soil and aggregate materials that comprise the constructed caps will be stockpiled separately from potentially impacted soils to allow for potential reuse as clean material during excavation backfill. Excavated material that is unable to be used as excavation backfill will be disposed of off-site at an appropriate licensed disposal facility.

Soils not placed directly in containers will be stockpiled on polyethylene (HDPE) sheeting. Excavated soil will be placed into the stockpile area along with similar types of soil contamination. All efforts will be made to prevent cross contamination of stockpiles that may require different management. Materials that will be managed in the same manner may be commingled. Stockpiles will be covered with secured plastic sheeting and should be segregated (e.g. use of hay bales to confine and segregate areas)

The construction activities may include the removal of the asphalt pavement or concrete material. It is anticipated that this asphalt pavement material will be segregated and loaded directly onto trucks for off-site recycle or disposal. Material for off-site disposal will managed as per the applicable procedures provided herein for the handling and tracking.

2.4 Transportation of Excavated Material

Generation of dust will be minimized during loading and transport operations. Application of water to active work areas will be utilized as required.

Required permits and/or authorization for transport of contaminated materials in accordance with local, state, and federal requirements will be obtained.

The trucks used for transportation of impacted soil will travel on authorized roads in accordance with local and state regulations. Trucks will be lined and covered and secured in accordance with all federal, state, and local regulations. Liners that cannot be decontaminated will be disposed with the impacted soil. Material shall pass test for free liquids prior to shipment. Admixtures such as kiln dust shall be used as necessary to bind free liquids

All loaded trucks leaving the work areas will be covered and cleaned of debris that might fall from the trucks during transport.

Equipment that is in contact with impacted material will be decontaminated prior to leaving the Site.

2.5 Stormwater and Dust Control

Hay bales and other siltation control measures to prevent erosion of stockpiled soils from their temporary storage locations are to be used as necessary. Stockpiles will be securely

covered with polyethylene sheeting to prevent erosion or generation of dust, as needed. The stockpile covers will also be ballasted as required to manage uplift from wind.

2.6 Dewatering

It is unlikely that groundwater will be encountered, however, if dewatering is necessary from stormwater or groundwater infiltration management of the liquids will be required. Water collected from dewatering operations will be routed to the on-site water treatment plant only with the permission of the facility HES department. If discharge to the facility wastewater system is not allowed, the water generated is to be collected and sent for proper off-site disposal.

2.7 Decontamination of Equipment

The decontamination procedures are described for personnel and equipment in direct contact with known or potentially contaminated soils within the example HASP provided in the SMP. Minimum requirements include thoroughly decontaminating equipment prior to leaving the Site using a dedicated decontamination station, as needed, and provisions for hand wash facilities and lunch/break areas. Liquids and materials used during decontamination procedures will be contained within the perimeter of the designated decontamination area. Each contractor will be required to develop, implement and update (as needed) their own HASP specific to the specific job requirements.

3 EXCAVATED SOIL SAMPLING AND ANALYSIS

3.1 Sampling Material for Off-Site Disposal

Adequate waste classification is to be completed on material designated for off-site disposal. This includes collection representative samples and analysis.

If soil or generated waste material has been designated for off-site disposal, samples may be necessary for waste classification. If needed samples will be collected from the excavated material and will be submitted to the laboratory for appropriate waste characterization. Sample analysis could include:

- Full Toxicity Characteristic Leaching Procedure (TCLP)
- TPH
- PCBs
- VOCs and SVOCs
- Percent Solids
- RCRA Metals
- Any other requirements specific to the disposal facility.

The specific analysis requirements will depend upon source of the waste, generator knowledge and disposal facility requirements. Records will be kept and maintained on identification of disposal facility, waste profiles and manifests/bills of lading. The collected information will be included in the annual inspection reports to the KDWM discussed in the SMP.

4 CAP RESTORATION REQUIREMENTS

The restoration of cap areas is to match the existing engineering control in place.

Clean fill or aggregate material brought on-site for use as backfill for excavations will be un-recycled (i.e., virgin fill) clean material and have supporting analytical data. Prior to use on the Site, the following information is to be provided for each type of off-site source backfill and fill material to be used:

- Name of material and location of the source of the material;
- Contact information of location of the source of the material;
- Particle size analysis, ASTM D 422;
- Total Petroleum Hydrocarbons (GRO and DRO), SW-846 Method 8015B;
- TAL Metals, EPA 6010B
- PCB, EPA 8082;
- TCL VOC EPA 8260;
- TCL BNA, EPA 8270C
- TCL pesticides, EPA Section 8081A

The specific analysis may be adjusted based on material source and provided background information.

5 RECORDKEEPING

Following the completion of intrusive activities within cap areas, the following informational records will be provided, maintained and provided in the annual report:

- Summary of the work including excavation, material management the transport of impacted materials, and cap restoration activities. Provide sketch(s) showing location of excavation and cap restoration activities.
- If possible, representative photos of the work including cap restoration activities.
- Documentation and description of any sampling activity plus all laboratory reports including chain of custody
- Copies of material source, backfill analyses for material received on-site and used of backfill within cap areas.
- Copies of waste analyses, waste profile sheets, and disposal facility acceptance for impacted soil and liquid disposed of off-site
- Copies of manifests or other forms of certification of final disposal signed by the responsible disposal official, certificates of disposal, and other pertinent documentation, as applicable.

FIGURES

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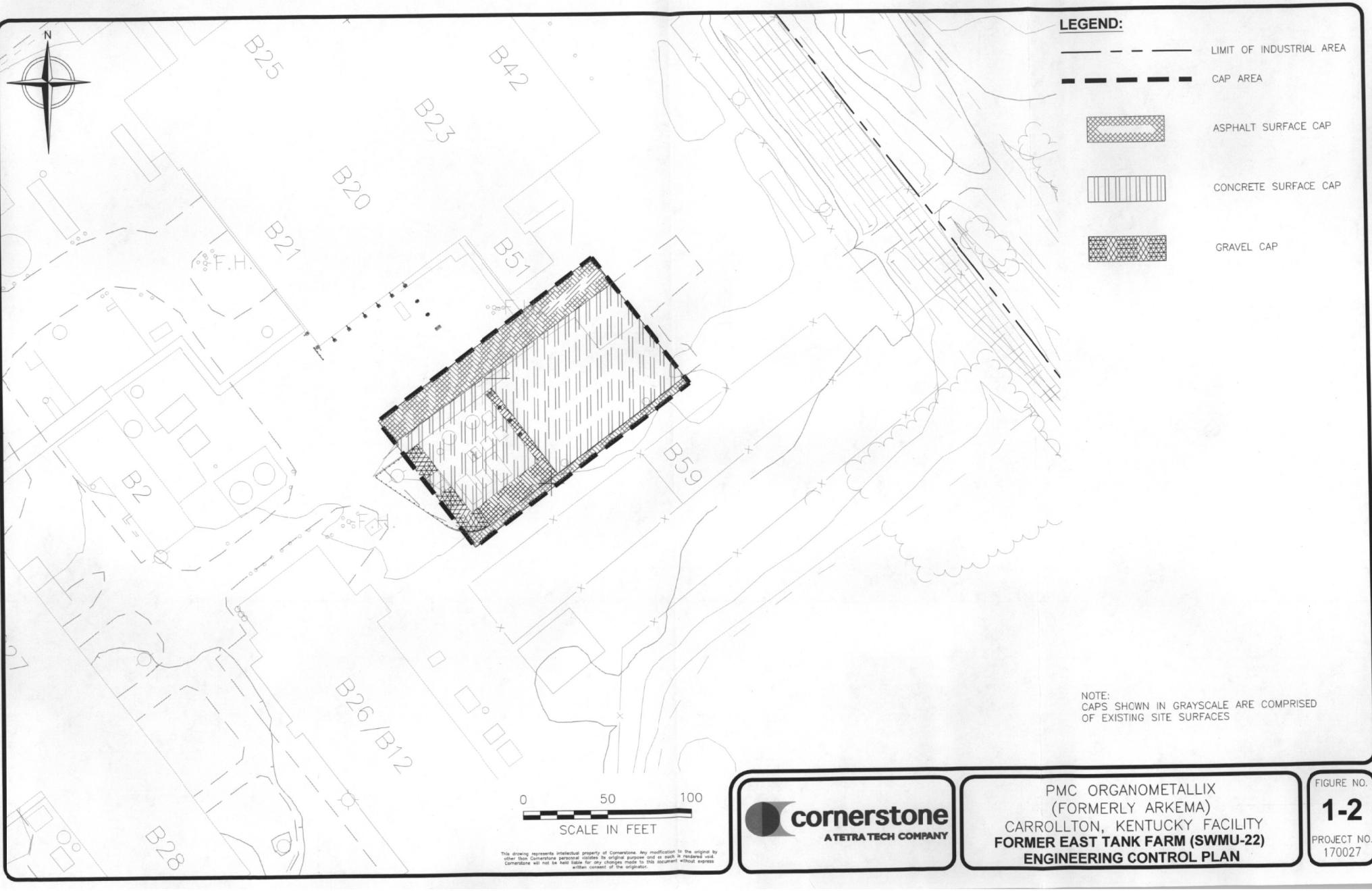
A TETRA TECH COMPANY

PMC ORGANOMETALLIX
(FORMERLY ARKEMA)
CARROLLTON, KENTUCKY FACILITY

LOCATION OF ENGINEERING CONTROLS

FIGURE NO.
1-1
PROJECT NO.
170027



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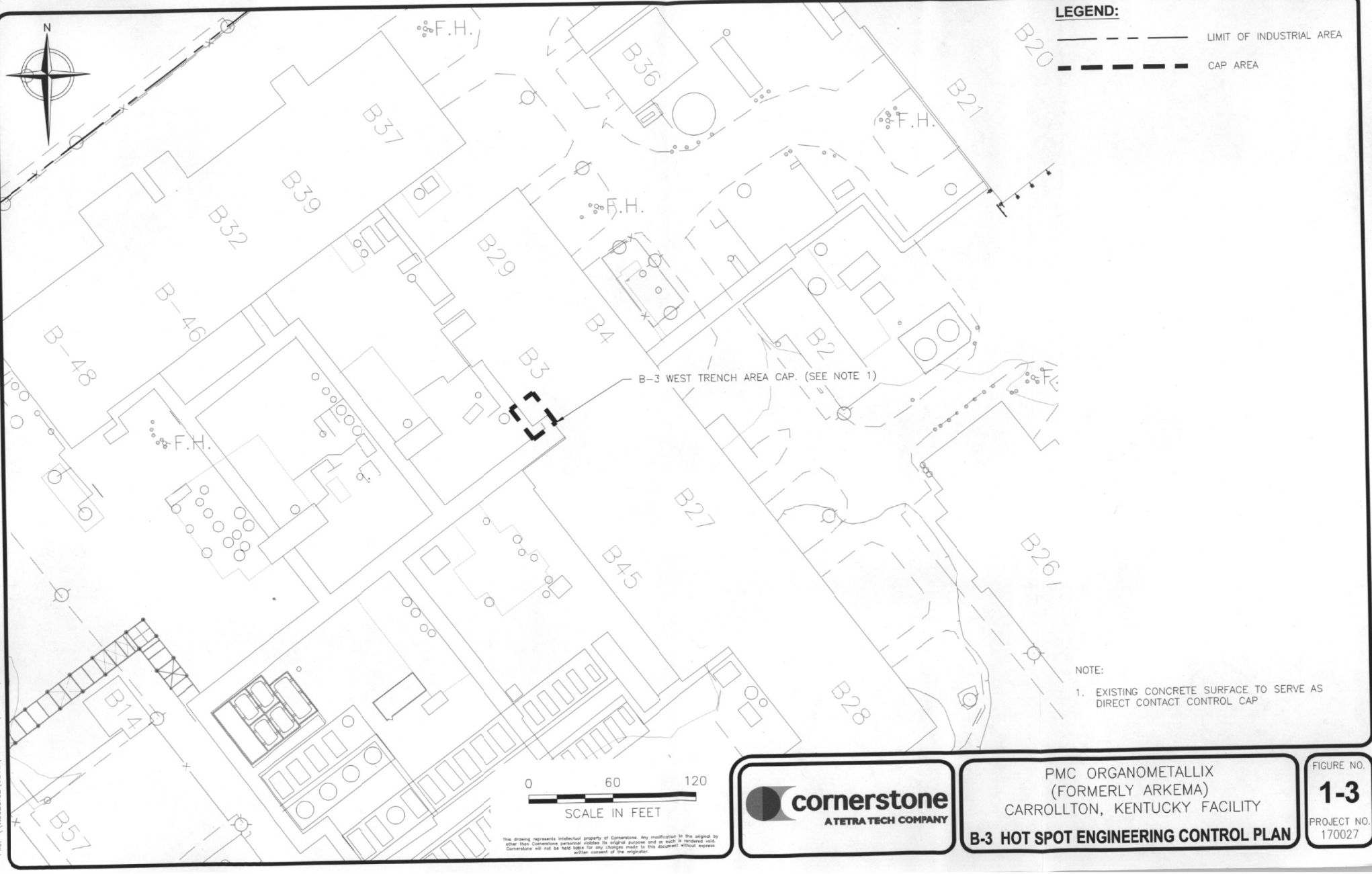
PMC ORGANOMETALLIX
(FORMERLY ARKEMA)
CARROLLTON, KENTUCKY FACILITY
FORMER EAST TANK FARM (SWMU-22)
ENGINEERING CONTROL PLAN

FIGURE NO.
1-2
PROJECT NO.
170027



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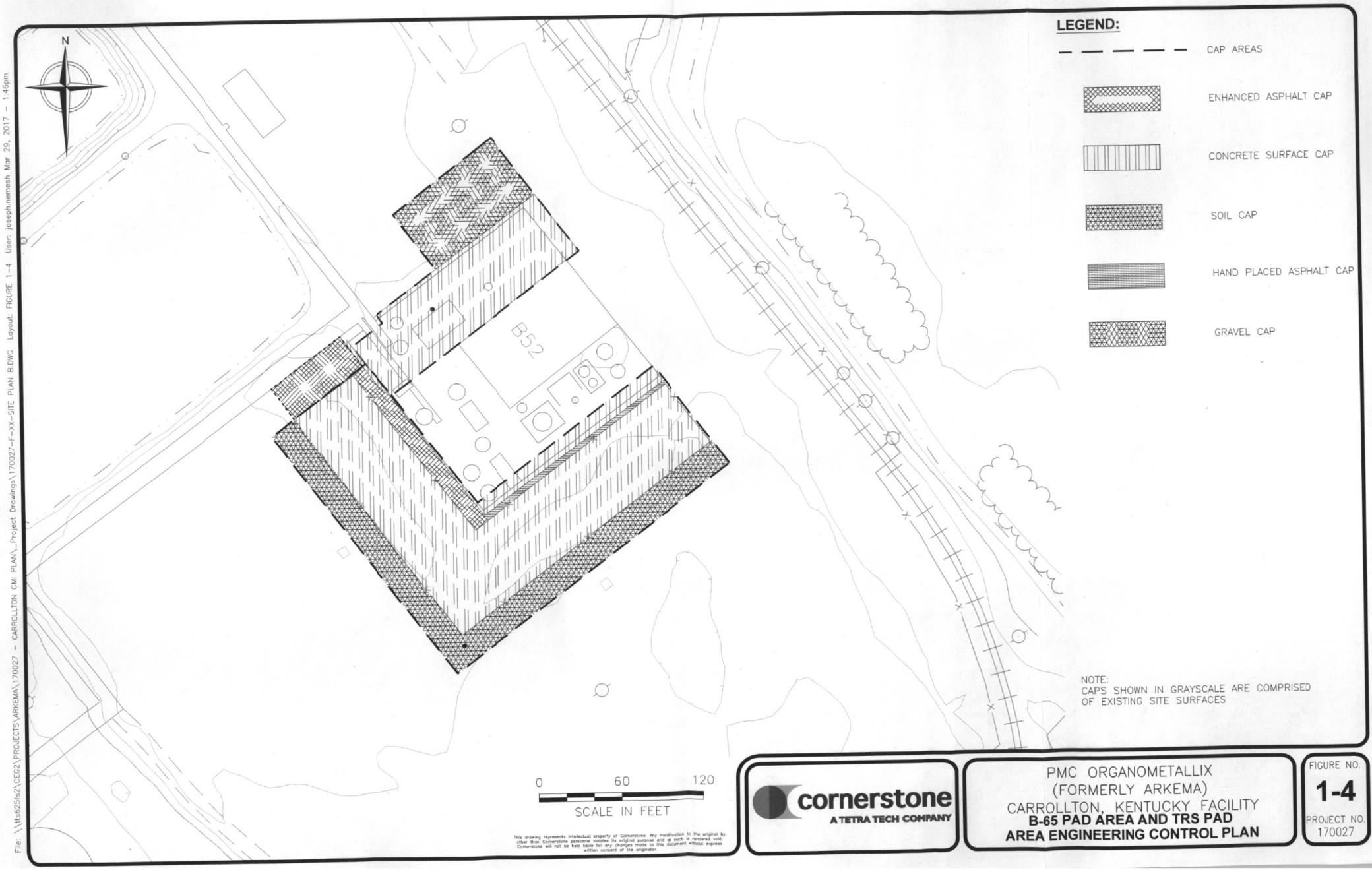
B-3 HOT SPOT ENGINEERING CONTROL PLAN

FIGURE NO.
1-3
PROJECT NO.
170027



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B-65 PAD AREA AND TRS PAD
AREA ENGINEERING CONTROL PLAN

FIGURE NO.
1-4
PROJECT NO.
170027

Rev. 1, 3/2/18
Project 170027

ATTACHMENT D
INSPECTION AND MAINTENANCE PLAN

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Building lifetime relationships with our clients and employees.

Inspection and Maintenance Plan

PMC Organometallix (Formerly Arkema) Carrollton, Kentucky Facility

March 2018 (Revision 1)

Prepared for:
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1 INTRODUCTION AND OBJECTIVE

This document presents the Inspection and Maintenance (IM) Plan for the PMC Organometallix Inc. (PMC), Carrollton Kentucky facility (U.S. Environmental Protection Agency (EPA) ID # KYD006373922, AI # 690). This facility was formerly owned and operated by Arkema Inc. This IM Plan is provided as part of the Corrective Measures Implementation Plan prepared under the Resource Conservation and Recovery Act (RCRA) Corrective Action Program. This work is being completed under the requirements of the facility Hazardous Waste Management Permit (the RCRA Permit) issued by the Kentucky Department for Environmental Protection (KDEP), Division of Waste Management (KDWM). As part of the Corrective Action Program, the facility has been investigated and corrective measures have been constructed for identified environmentally impacted areas or Corrective Action Areas. Corrective measures consist of surface caps and a perched water collection system.

This IM Plan outlines the inspection and maintenance activities that will be implemented at the site following completion of the corrective measures. Inspection and maintenance activities include the following:

- Cap inspection and maintenance
- Perched water collection system operation and maintenance

Locations of areas of engineering controls are shown on Figure 1-1, and are generally located in the following areas of the facility:

- Former East Tank Farm (SWMU 22)
- B-3 Hot Spot (part of SWMU 69)
- Perched Water Area (AOC P)
- North Side TRS Concrete Pad Area (AOC Q)

A health and safety plan (HASP) is provided as an attachment to the Site Management Plan to provide guidance on health and safety procedures to be followed for the inspection, maintenance and operation activities covered by this plan. Each contractor will be required to develop, implement and update (as needed) a HASP specific to the job requirements.

2 SITE INSPECTION, OPERATION, AND MAINTENANCE REQUIREMENTS

2.1 Cap Inspection and Maintenance

The inspector(s) will make observations of the cap. The inspector will walk along the cap, look for signs of settling and unevenness (e.g., ponding); for cracks or crumbling pavement/concrete; or for other damage that compromises the proper functioning of the cap.

Inspections will be performed on an annual basis in order to assess the integrity, operability and effectiveness of the caps. Each inspection that is conducted will be recorded on an inspection checklist form. An example inspection checklist form is attached (Appendix A).

Minor repairs to the final cover system will be completed on an as-needed basis, as determined by the inspections. These will generally consist of regrading and potential additional aggregate placement (gravel caps) to repair erosion features or repair of damaged areas (pavement/concrete caps).

Non-routine cap maintenance measures will be undertaken if signs of excessive differential settlement or subsidence or significant damage to the cap are found during inspections, which could affect the proper functioning of the cap. Cap repair will involve removal and replacement of affected cap areas, following the requirements contained in the Material Management Plan and project specific HASP.

2.2 Perched Water Collection System Operation and Inspection

Inspector(s) will make observations of the perched water collection system. The inspector will remove the perched water collection system sump cover and look into the sump to check for liquids. The inspector will also take water level measurements in the sump. The valving, force main connection, and pump will be observed for signs of leakage, damage, or fouling.

Inspections will be performed on a periodic basis in order to assess the operability and effectiveness of the perched water collection system. In general, inspections will be scheduled to occur after significant rain events or during rainy seasons to evaluate the performance of the perched water collection system. Each inspection that is conducted will be recorded on an inspection checklist form. An example inspection checklist form is attached (Appendix A). The frequency of inspections will depend on the amount of water being recovered. Initially quarterly inspections will be performed during the first year of operation. Given the reduced infiltration from the installation of engineering controls the

flow rates and necessary inspection schedule will reduce after the first year. However, if necessary based on inspection results, more frequent inspections may be necessary.

2.3 Maintenance Schedule

The schedule of maintenance for the majority of tasks required at the site is on an as needed basis. For example, if settlement and erosion of the cap do not occur, there is no need for maintenance tasks associated with subsidence or erosion. As-needed maintenance activities will be performed when the conditions at the Site could potentially affect the performance of the remedy components as originally designed.

3 RECORDS, RECORD KEEPING AND REPORTING

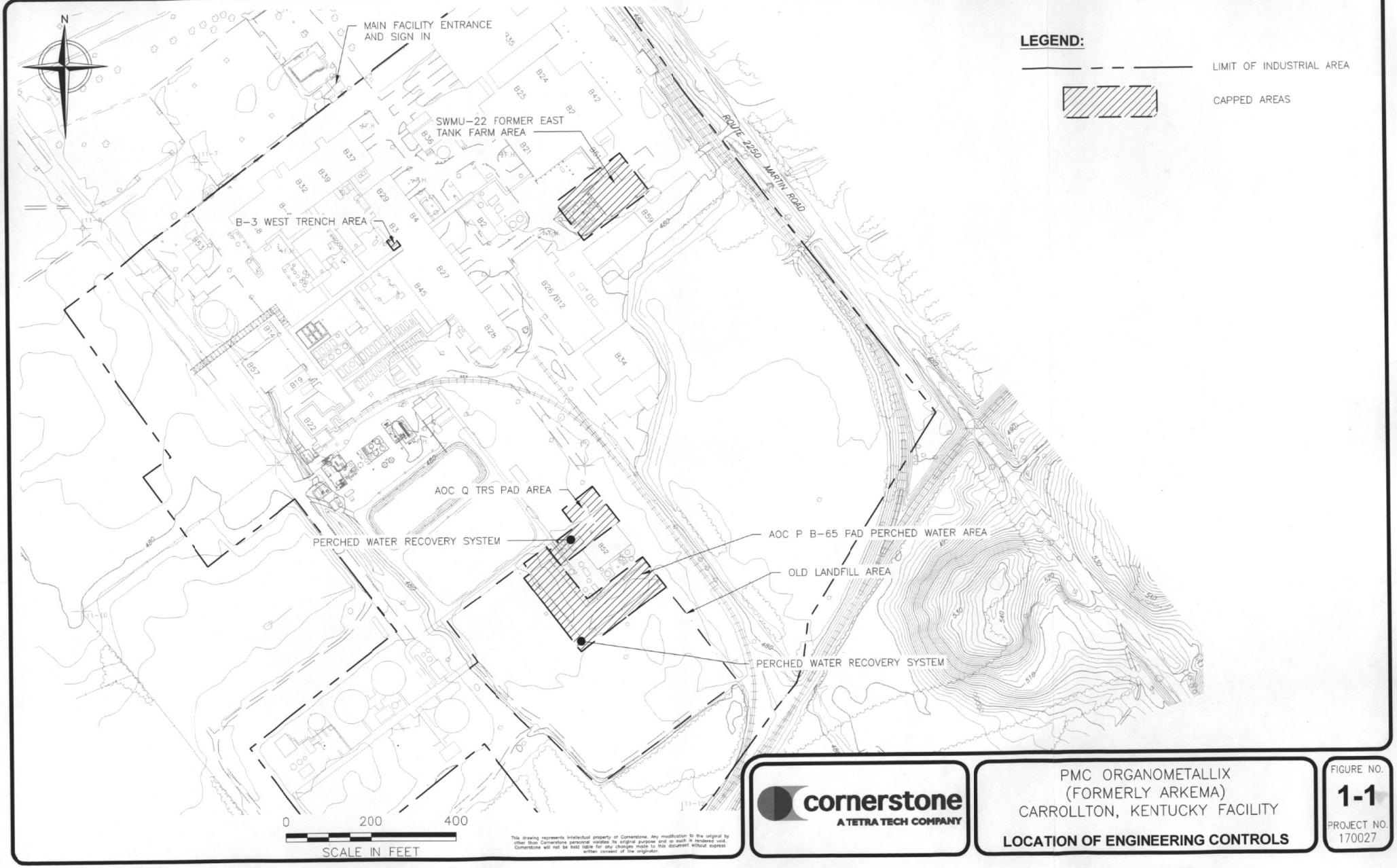
Records will be organized and maintained and kept for a period of at least five years from the time in which they were generated and include:

- Annual reports;
- Off-Site material disposal records;
- Site inspection reports;
- Record drawings and any CQA/CQC data for construction activities;

3.1 Annual Report

Reporting will be conducted in accordance with the requirements of the Environmental Covenant. An annual report will be prepared to document monitoring and maintenance activities at the Corrective Action Areas and will detail compliance with the terms of the Covenant while noting exceptions, if any.

FIGURES



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LOCATION OF ENGINEERING CONTROLS

FIGURE NO.
1-1
PROJECT NO.
170027

APPENDIX A
EXAMPLE SITE INSPECTION FORM

PMC ORGANMETALLIX CARROLLTON, KENTUCKY FACILITY
CAP INSPECTION CHECKLIST

Date: _____

Temperature _____

Weather Conditions: _____

Ground Condition: _____

Inspection Items	Check Only Those That Apply(a)
Caps (attach map showing actions areas, as necessary)	
Asphalt Pavement / Concrete	
No Action Necessary	
Potholes / Cracks in Need of Repair	
Seams and/or Edges Damaged in Need of Repair	
Settlement Areas Observed	
Soil Caps	
No Action Necessary	
Cap Repair Needed	
Settlement Areas Observed	
Erosion Observed	
Comments:	

(a) describe conditions and if repair needed describe nature of required activity

Inspector Signature Date

Inspector Name and Company

PMC ORGANMETALLIX CARROLLTON, KENTUCKY FACILITY
PERCHED WATER COLLECTION SYSTEM INSPECTION CHECKLIST

Date: _____

Temperature _____

Weather Conditions: _____

Inspection Items	Check Only Those That Apply(a)
Perched Water Collection System	
No Action Necessary	
Equipment Repair Needed	
Pump Cleaning Needed	
Flow Counter Reading	
Pump Operates Properly	
Sump Liquid Level	
Comments:	

(a) describe conditions and if repair needed describe nature of required activity

_____

Inspector Signature Date

_____

Inspector Name and Company

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ATTACHMENT E
SAMPLING AND ANALYSIS PLAN

SAMPLING AND ANALYSIS PLAN

Groundwater monitoring will be completed Carrollton Plant as part of the Site Management Plan. This monitoring program will include the collection of groundwater elevations and annual sampling of groundwater from the facility monitoring network. This network includes 13 monitoring wells. In addition, Plant production wells in operation at the time of monitoring are sampled.

Well Inspections

Prior to sampling the wells will be inspected. The well locks, concrete block, hinged cover, and surface area around the well will be inspected at time of sampling for signs of tampering (i.e., well is still in place; no holes, scratches or abrasions present) and deterioration (erosion of soil away from the well; settlement; cracks in concrete; rust on the lock, well casing or hinged door). If maintenance is necessary, it will be identified and completed.

Monitoring Program

The groundwater monitoring will be completed in following procedures in previously approved sampling plans. The annual groundwater sampling will be conducted in accordance with the procedures described in the RFI II Work Plan Revision I (September 1996), as modified in subsequent approvals. Groundwater monitoring locations are shown on Figure 1. A list of sample locations and analysis is provided in Table 1.

Groundwater samples will be collected in accordance with the USEPA Low Flow (minimal drawdown) Groundwater Sampling Procedures (EPA/540/S-95/504). This includes use of a bladder or small diameter submersible pump that is set at the midpoint of the monitoring well screened interval and pumped at a rate of approximately 0.1 to 0.5 liters per minute (lpm) with the objective of maintaining drawdown in the well to less than 0.3 feet. The pumped water is discharged through a flow through cell and a multi-parameter meter (Horiba U-52 or similar) is used to monitor pH, specific conductance, temperature, dissolved oxygen, turbidity and ORP/Eh until the parameters stabilize over time.

In the event that the stabilization parameters are not met after a maximum of two hours of pumping, the sample will be collected at that time with a notation that the sampling parameters did not stabilize. Measurements will be recorded in a field book or field sampling data sheet and will become part of the sampling record.

Upon reaching stabilization, the tubing will be disconnected from the flow through cell and the samples for laboratory analysis will be collected directly into laboratory provided glassware. The sample bottles will be labeled with the well location ID, sampling date and time. The collected samples will then be stored on ice pending shipment to the laboratory

under chain of custody. Samples will be maintained at 4 degrees Celsius until delivery to the lab.

Following collection of the sample, the pump will be removed from the well, cleaned with alconox/potable water, followed by a potable water rinse and DI water rinse prior to use at the next location. Tubing will either be dedicated to each well or new tubing will be used.

QA/QC Field Samples will be collected including MS/MSD, Duplicates, Field Blanks and Trip Blanks at a frequency indicated in Table 1.

Samples will be shipped via proper chain of custody protocols to a laboratory for analysis of Volatile Organics (via method 8260) and bis-2-ethylhexyl phthalate (via method 8270) using the methods detailed in SW-846.

Groundwater Data Assessment and Reporting

A groundwater monitoring report will be prepared for submittal to KDWM within 90 days following receipt of the final analytical laboratory data report. The report will describe the sampling procedures, identify any necessary variations or changes to the sampling plan, summarize the analytical results in tabular format and provide a discussion of the reported concentrations and conclusions.

Table 1
Groundwater Sampling Plan

Sample Identification	TCL VOCs	Bis(2-ethylhexyl) phthalate	Field Parameters [a]
Monitoring Wells			
MW-005	X	X	X
MW-006	X	X	X
MW-007	X	X	X
MW-008	X	X	X
MW-009	X	X	X
MW-010	X	X	X
MW-106	X	X	X
MW-107	X	X	X
MW-204	X	X	X
MW-205	X	X	X
MW-206	X	X	X
MW-207	X	X	X
MW-208	X	X	X
Production Wells [b]			
PW-001	X	X	X
PW-003	X	X	X
PW-004	X	X	X
PW-006	X	X	X

[a] Field Parameters: pH, specific conductance, temperature, and turbidity

[b] Production wells operating at time of monitoring will be sampled

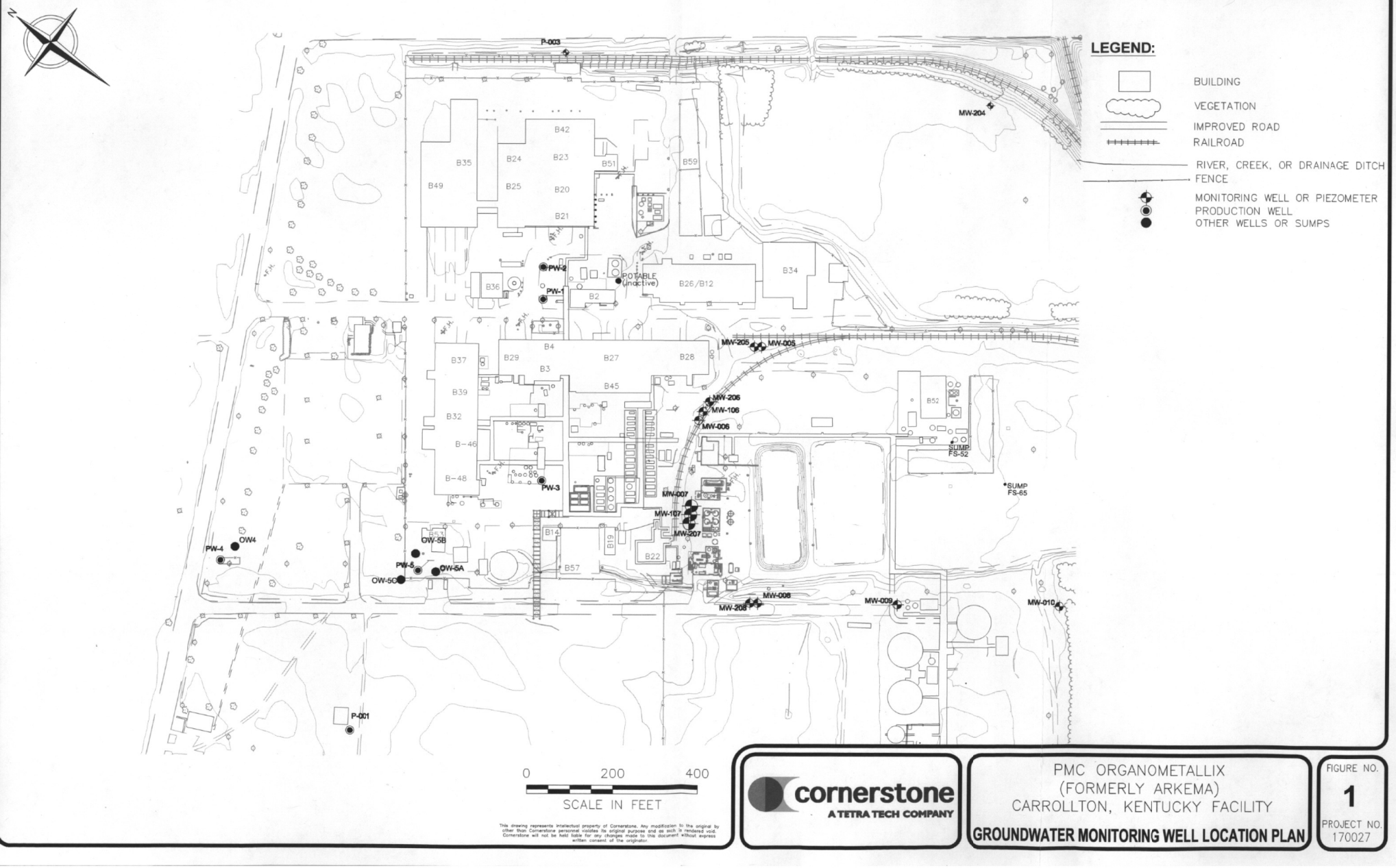
Quality Assurance/Quality Control (QA/QC) Samples:

MS/MSD Samples: 1 per per sample event

Duplicate Samples: 1 per sampling event

Field Blank: 1 blank/day/matrix or 1 blank/20 samples/matrix, whichever is more frequent

Trip Blank: 1 field blank for volatiles per event



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GROUNDWATER MONITORING WELL LOCATION PLAN

FIGURE NO.
1
PROJECT NO.
170027